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ABSTRACT

Landscape architects have a combination of abilities that have been gained through education and experience that could make their demonstration of environmental concern as citizens very effective. This study assessed the attitudes, verbal commitment, and actual commitment regarding environmental concern held by landscape architects registered and living in California, Connecticut, Florida, or Washington. A sexually stratified random sample was used that equally divided the participants per state and also classified them as members or nonmembers of the American Society of Landscape Architects (ASLA). The results indicated that landscape architects held positive attitudes and verbal commitment to environmental concern that were not reflected in actual commitment. A significant positive relationship existed between time devoted to "pro bono" work and "civic activities" and actual commitment to environmental concern. While attitude and verbal commitments were similar, ASLA members reported significantly higher actual commitment than nonmembers. (Author/TW)

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LANDSCAPE ARCHITECTS AND ENVIRONMENTAL CONCERN: AN EXAMINATION OF ATTITUDES, VERBAL COMMITMENT AND ACTUAL COMMITMENT

A Thesis

Presented in Partial Fulfillment of the Requirements for

the degree Master of Science in the

Graduate School of The Ohio State University

by

Anita Anne Ruiz, B.A., M.L.A.

* * * * *

The Ohio State University

1987

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SE 048 353

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For Randy, my travellin' buddy

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The success of this project is owed in part to all the good people who helped and supported me when I needed it most. To the Chairperson of my committee, Dr. Rosanne Fortner, I am truly thankful for your interest, guidance, encouragement, and most of all, support as I made my way through what appeared at times to be uncharted and unfriendly territory. To my other committee members, Dr. John Disinger and Charlotte Kitchell, thank you for your support and for being there when I needed you.

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ABSTRACT

Attitudes, verbal commitment, and actual commitment regarding the environmental concern landscape architects registered and living in either California, Connecticut, Florida, or Washington have as citizens were assessed in this study. A sexually stratified random sample was used that equally divided the participants per state as either ASLA members or nonmembers. Landscape architects held positive attitudes and verbal commitment to environmental concern that were not reflected in actual commitment. A significant positive relationship existed between time devoted to 'pro bono' work and 'civic activites' and actual commitment to environmental concern. While attitude and verbal commitment were similar, ASLA members reported significantly higher actual commitment than nonmembers.

CHAPTER I

INTRODUCTION AND PROBLEM STATEMENT

Background and Setting

Environmental concern has roots that go back as far as the late 1800's when the first conservationist battle was fought over the General Revision Act of 1891. Speaking for the larger interests of society and its future generations, Theodore Roosevelt's conservation movement in the early twentieth century continued the struggle (Petulla, 1977). From this time until the early 1960's, concern about environmental issues has ebbed and flowed with the world and national events taking place.

Although groups such as the Sierra Club and the Wilderness Society had already been active for years, Rachel Carson's Silent Spring, written in 1962, is generally given credit for focusing attention on the worsening environmental problems America (and the world) was facing and the need for citizens to begin demonstrating their concern for the environment.

Participation in matters of environmental concern need not be limited, however, to the individual and group levels that are most often considered in environmental literature. Demonstration of environmental concern can also be acknowledged on the state level. In Megatrends, John Naisbitt (1984) indicates that there are five states in which most new social trends and positions on issues occur in this country, many of which are environmentally related. The states are ranked with California being considered the key indicator state; followed closely by Florida; then Washington, Colorado, and Connecticut as the three remaining trend-setting states. Naisbitt attributes this action to the rich mixture of people living in these states that results in creativity, experimentation, and change.

As concerned citizens we have many different ways in which to demonstrate our concern. Demonstration can cover the spectrum of relatively passive actions such as paying membership dues to environmental organizations and subscribing to environmental publications to more active involvement including recycling, buying products that are less likely to pollute the environment, keeping track of elected officials' voting records on environmental issues, and writing to these officials concerning environmental issues. A more active person might take a further step and attend meetings specifically concerned with bettering the environment or join a cleanup drive. There is no end to the

different ways citizens can demonstrate environmental concern.

Today, with our environment experiencing increased degradation, the demonstration of environmental concern in all aspects at all levels has become even more critical not only to human survival but also to the survival of every other species inhabiting this planet. While it is generally accepted that everybody contributes to environmental problems in one way or another, everybody does not demonstrate environmental concern.

Landscape Architects

A population receiving little or no attention to date regarding attitudes and verbal and actual commitment toward environmental concern is that of registered landscape architects (LAs). These people have a combination of abilities honed through education and experience that could make their demonstration of environmental concern as citizens very effective. They have proven their competancy in landscape architecture as tested by the Uniform National Exam (UNE) for state registration. Landscape architectural work experience is often a prerequisite to taking the UNE. This work period may range from no work experience to twelve years experience, depending on the registration state and the level of landscape architectural education attained (CLARB, 1984).

"Stewards of the land" is a term most often used by LAs when describing their function in relation to the environment. They take great pride in their sensitivity and caring for the quality of the landscape. As professionals, they are directed to actively seek the attainment of harmony with the environment for the health, safety and welfare of humankind. If LAs are to truly consider themselves "stewards of the land" they must become more active in their display of environmental concern through the holistic application of their stewardship.

LAs are in a unique position to demonstrate environmental concern as learned and concerned citizens. Landscape Architects' basic training is as generalists. They have been taught how to integrate information from various disciplines in order to arrive at viable solutions to problems. Those disciplines include not only technical fields such as civil engineering, city and regional planning, and architecture, but also the environmental fields of geology, agronomy, horticulture, botany, and ecology. This is by no means a comprehensive list of the other disciplines with which the LA must be familiar in order to perform effectively. LAs know how to sift through this multidisciplinary information, select what is pertinent to the situation and then carefully consider the situation as a whole. It is this holistic consideration of each problem with all of its components that allows the LA to

grasp the picture in its entirety. These abilities are greatly needed when viewing environmental problems and their solutions, because environmental problems are usually complex and encompass concerns from many disciplines.

Landscape architects are taught to view design problems and solutions for long term effects. Granted, some clients may consider only the immediate results from design solutions but it is the LA who must also keep an eye toward the future in order to ensure that the solution will work well in the future. So it is with environmental concern. Most environmental problems do not occur overnight and neither do their solutions. LAs are capable of demonstrating environmental concern through this ability to consider situations and actions in the long term, which seems to be another in a growing list of skills that is rapidly vanishing from this "want it now, pay for it later" world.

Landscape Architects have also been trained to be objective in their decisionmaking--to accumulate as much data as possible and then weigh the pros and cons of the situation without interjecting personal emotions. It is well known that as soon as emotions enter into decisionmaking objectivity is lost, and without objectivity sound solutions are not possible. Environmental problems need objectivity in order to guarantee sound decisions for

their solution/resolution, for without that objectivity, problems could be made worse.

Another area of the landscape architect's training includes the formulation of several alternative solutions to a problem. Creativity is the cornerstone of landscape architecture. It is this ability to creatively seek viable alternative solutions to what are often complex problems that enables LAs to meet the challenge when faced with seemingly insurmountable odds. It may well be just this creativity that helps LAs turn environmental problems around to a positive solution.

When seeking solutions to problems, LAs have been trained to generate several sound reasons to justify their actions. It is not acceptable to act intuitively. LAs are expected to be able to defend their judgements.

Finally, LAs are taught to care about the success or failure of their design solutions. A procedure known as Post Construction Evaluation (PCE) allows the LA to review the design solution periodically after implementation. If the solution is not successful, the LA needs to study the problem and make note of needed adjustments or changes. This additional knowledge can then be applied from the onset to other design situations. Environmental problems need the kind of attention that PCE study can provide. Too often environmental problems have been deemed to be "solved" when in fact they haven't been. A prime example of this is the

USEPA's assertion that it had corrected the problems at six hazardous waste sites. Time has proven otherwise. The USEPA has once again added those six sites to the Superfund list of sites that need cleanup.

The American Society of Landscape Architects

While the American Society of Landscape Architects (ASLA) does not represent all registered landscape architects, it is recognized as the national organization devoted exclusively to the profession of landscape architecture and the interest of its practitioners. Since many practitioners look to this organization for guidance, one should look at how it defines "landscape architecture" and "stewards of the land." Founded in 1899, the ASLA withdrew its official definitions of these terms approximately three years ago because of heated debates about the definitions' true representation of the profession (Simpson, personal communication). The definition of these terms continues to be an issue that causes a great deal of debate among Landscape Architects. Even as this research project is being written, academicians are struggling with creating appropriate definitions for these terms.

A call to arms was recently sounded for LAs--that as stewards of the land, "the time has come to claim the appearance of the landscape as our resource and to do so without apology...It is after all, a natural resource like

any other."[1] In stating his case for stewardship of the appearance of the landscape, Chenoweth (1986) continues

> "...To what degree do we participate, as other professions do, in drafting legislation or promulgating agency rules, at all government levels, that would protect this resource throughout the landscape? Are we active in providing knowledgeable testimony when the appearance of the landscape is threatened with degradation, wherever it may be?...How can others enlist such massive concern for snail darters when the appearance of the Grand Canyon can hardly be viewed through the haze? What environmental groups claim the conservation of beauty of the landscape as their primary mission? How effective are we as advocates for our resource when it is pitted against the resources of others with less stewardly proclivities?"[2]

Others, however, take a broader view, insisting that stewardship encompasses far more than just the visual. Appointed by the ASLA in early 1986 to the newly created committee whose mission is to develop an acceptable definition of "stewards of the land," one member has talked about the committee's approach. Harkening back to Fredrick Law Olmsted, the "father of landscape architecture," the committee is considering approaching the definition from Olmsted's viewpoint--that landscape architecture and stewardship of the land are a philosophy, a way of life that doesn't stop at the end of the business day (Simpson, personal communication). It is a holistic approach to stewardship of the land, considering all impacts upon the land at all times.

The Oxford English Dictionary defines "stewardship" as being "conduct of the office of steward; administration,

management, control."[3] Even if one were to consider just the visual element, it appears that demonstration of environmental concern would be necessary to protect that element. The effects of pollution take a toll on the visual environment, such as vegetation dead or dying from acid rain, streams clogged with dead fish from thermal pollution, and chemical scum and dead wildlife in and around our streams and rivers from illegal dumping of substances. For those who contend that stewardship encompasses much more than just the visual, the list is even longer.

As a preface to the numerous position statements the American Society of Landscape Architects (ASLA) has adopted (from the 1985 ASLA Members Handbook), the Society states that it has developed its public policies on current matters about which its membership has voiced concern. These public policies cover a range of issues from national growth pressures to pollution. Not only do these policies deal with pollution in general, as when the Society states that

> "The American Society of Landscape Architects, being vitally concerned about the quality of our total environment, deplores any form of pollution that adversely affects the land, air, or water."[4]

but also very specific types of pollution, including atmospheric pollution. The Society has stated that it

> "...protests against pollution of the atmosphere by noxious emissions from vehicles and from industries, and by cities and towns across the nation which contribute to the nuisance and damage resulting from needless air pollution, all of which are detrimental to health, comfort and property...The Society strongly urges a much more

> aggressive pursuit of the means necessary to eliminate completely from the atmosphere all undesirable and harmful air pollutants..."[5]

Other forms of pollution are of concern to the ASLA as well. The continuing thermal pollution of our waterways moved the ASLA to develop a specific policy for this in 1971, which states in part that

> "The dramatic increase, current and projected, in the thermal pollution of our waterways gives cause for all people to express concern and insist that proper controls over thermal pollution be established and enforced by those state, federal, and international agencies having jurisdiction."[6]

Continuing its statement of public policies, the ASLA took a stand in 1963 concerning stream pollution, stating that

> "...the building of more and more industries along our waterfronts and the development of domestic cleansing agents and industrial effluents harmful to the growth of plants and animals should be of personal concern to every citizen of our country. This suicidal procedure should be brought to the attention of our people so concisely that a well-informed citizenry can use its influence to the fullest when urging remedial measures on sanitary, conservation, and governmental agencies responsible for the control of the menace."[7]

A more severe form of pollution did not escape the notice of the ASLA. In 1980, the Society developed its policy concerning radioactive wastes, recognizing

> "...the acute danger to the people, flora, and fauna of the United States and the world resulting from the production and use of radioactive materials and from growing inventories of irradiated wastes accumulating in the biosphere...The Society urges all public agencies and private enterprises concerned with a safe and healthy world to direct major efforts toward

> development of procedures for the neutralization of radioactive waste and reclamation of all environments contaminated by radioactive elements. The Society also urges international scientific and nature-preservation organizations to join forces in an attempt to resolve the problems associated with radioactive waste on a worldwide front."[8]

Another policy the ASLA developed considers a more basic problem confronting the environment - national growth. In formulating its position on national growth, the ASLA recognized in 1974 that national growth pressures will continue and that

> "...unless there is a cohesive, organized national effort to control and plan for growth, then the deterioration will continue and in many areas will cause irreparable damage to man's environment. The Society believes there must be a codified national commitment to the controlling of the process which reconciles individual freedom of choice and movement with the preservation of natural systems and our living environment..."[9]

Consideration has also been given to other areas of environmental concern, including natural areas. In presenting its case on coastal zones in the policy approved by the Board of Trustees in 1980, the Society has stated that it

> "...believes that where unique coastal landscapes exist, whether on or offshore, both public and private efforts should be directed at protecting these irreplacable resources and guaranteeing their integrity, through appropriate conservation, preservation or other forms of management."[10]

Not willing to stop here, the Society also developed a public policy concerning wilderness in 1973, stating that

> "...the preservation of wilderness, wildness, natural processes, and natural communities of plant and animal life is a highly important part of society's interrelationship with nature. The study of these relationships and processes, and their value to humanity, is a worthwhile and necessary endeavor. The Society believes that wilderness preservation is a wise principle of co-existence between humans and nature, and should be seen as a part of all conservation, of all efforts toward ecological stability. In addition, the Society is seriously concerned about similar lands of somewhat less than wilderness caliber. Be they called "wild," "roadless," "backcountry," "primitive," "defacto," etc., a determined effort by governing officials and private citizens must be made to determine the importance of their preservation..."[11]

As can be readily seen by the above quotes, the ASLA has developed several public policies on behalf of its membership that eloquently state its belief in environmental concern and action. Many registered landscape architects in the United States belong to this organization. Has its membership listened? Have its members taken any of these policies to heart and demonstrated environmental concern?

It is difficult, however, to ascertain the true extent of landscape architects' attitudes and commitment with regard to environmental concern. Casual conversations with practicing Landscape Architects and students in Landscape Architecture have not revealed any great interest or activity in matters of environmental concern. Is this related to how LAs perceive their role in the environment? What about LAs who live and are registered in Naisbitt's five trend-setting states? Would they show high levels of environmental concern and commitment?

Environmental concern can be contageous. But sitting around and waiting for somebody else to do all the work is not the answer. Perhaps the International Union for Conservation of Nature and Natural Resources best expressed environmental concern when it said:

> "We have not inherited this earth from our parents...
> We are borrowing it from our children."

Problem Statement and Objectives of the Study

This research project was designed to:

1. Determine if there was a difference between self-reported levels of verbal commitment and actual commitment to environmental concern by registered Landscape Architects.

2. Determine if there was a difference between self-reported attitudes and verbal and actual commitment toward environmental concern of registered Landscape Architects who were members of the ASLA and those who were not members.

4. Identify and describe differences and similarities in socioeconomic items for those registered Landscape Architects who reported the higher levels of environmental concern and action.

Definition of Terms

The following definitions apply to terms used in the research project:

Environmental Concern. The acknowledgement and acceptance of each person's responsibility for the quality of the environment that is taken by an individual or group of individuals and the subsequent actions.

Pilot Group. A pilot group is a cluster of people serving on a smto all scale as a trial unit for testing purposes.

Target Group. A target group is a cluster of people serving on a large scale as the principal unit for testing purposes.

Questionnaire. A questionnaire is a series of questions or statements which are directed at individual participants through the use of a printed form.

Registered Landscape Architect. A person who has demonstrated competency in landscape architecture by having taken and passed the Uniform National Examination (UNE) before being granted registration by the state(s) in which the professional practice is to be performed.

Region. Four regions comprise the United States of America: the Northeast, North Central, South, and West (see Figure 2). The Northeast region consists of Maine, New

Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania. The North Central region consists of Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas. The South region consists of Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas. The West region consists of Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, and Hawaii (Bogue, 1985).

Limitations of the Study

The research project was limited by the following constraints:

1. Because of the expense of questionnaire reproduction and mailing, the number of selected participants per state was restricted.

2. Limited finances precluded the complete adherence to Dillman's Total Design Method for mail surveys. That is, the follow-up procedure was restricted to the mailing of a reminder postcard to all nonrespondents.

3. Coding of the represented college programs in landscape architecture was limited to the four regions of the United States.

4. Colorado was excluded from the study because it does not require professional registration of landscape architects. Therefore there was no way to secure an equivalent sample to the other bellweather states.

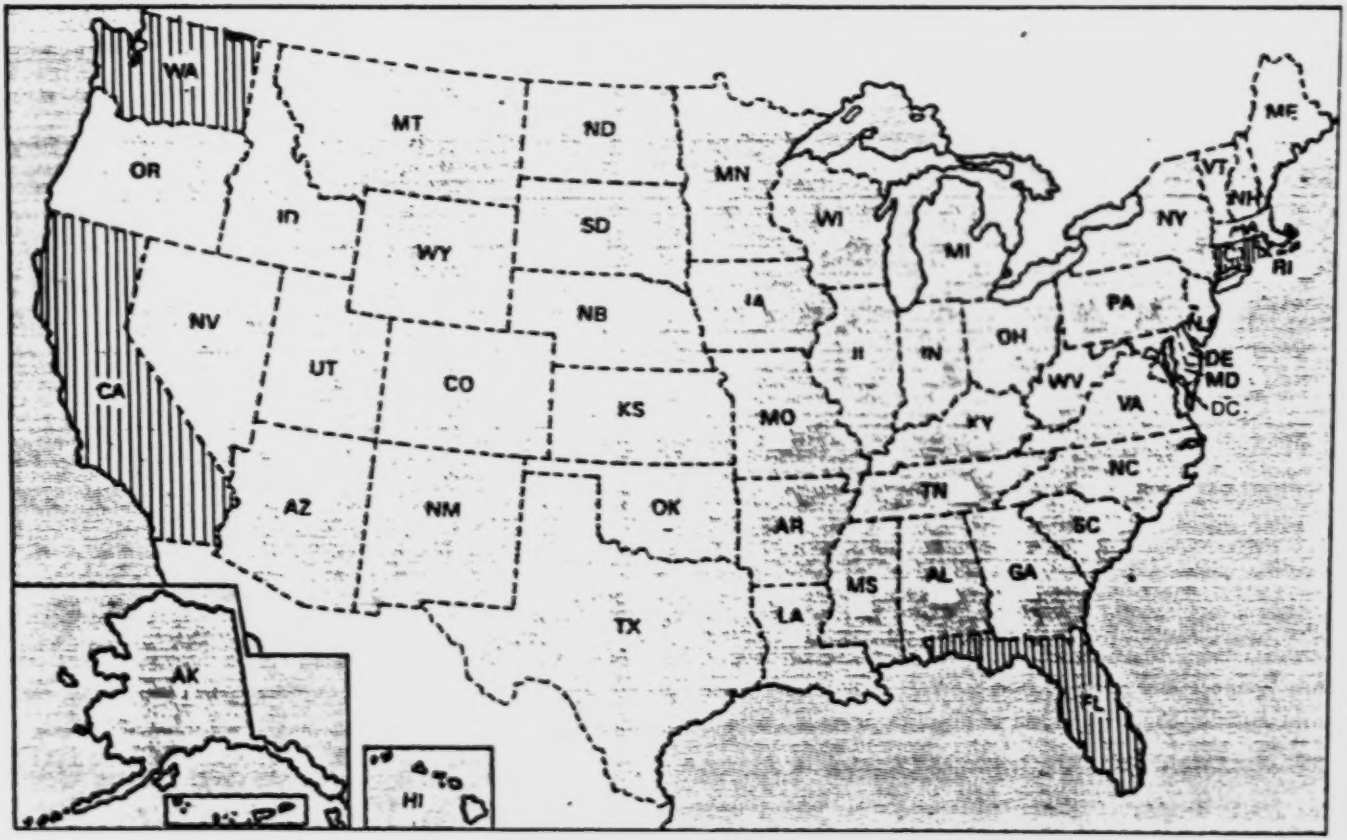
Hypotheses of the Study

It was hypothesized that:

1. Landscape architects registered and living in their primary state of professional practice would not be as active in their demonstration of environmental concern as citizens as their stated concern with the quality of the environment would indicate.

2. Landscape architects registered and living in their primary state of professional practice would not be as active in their demonstration of environmental concern as citizens as their stated willingness to act would indicate.

3. Registered landscape architects who are members of the ASLA would report higher levels of actual commitment to environmental concern than those who are not members.



(Martin Greenwald Associates, 1984)

FIGURE 1 - PARTICIPATING STATES LOCATOR MAP

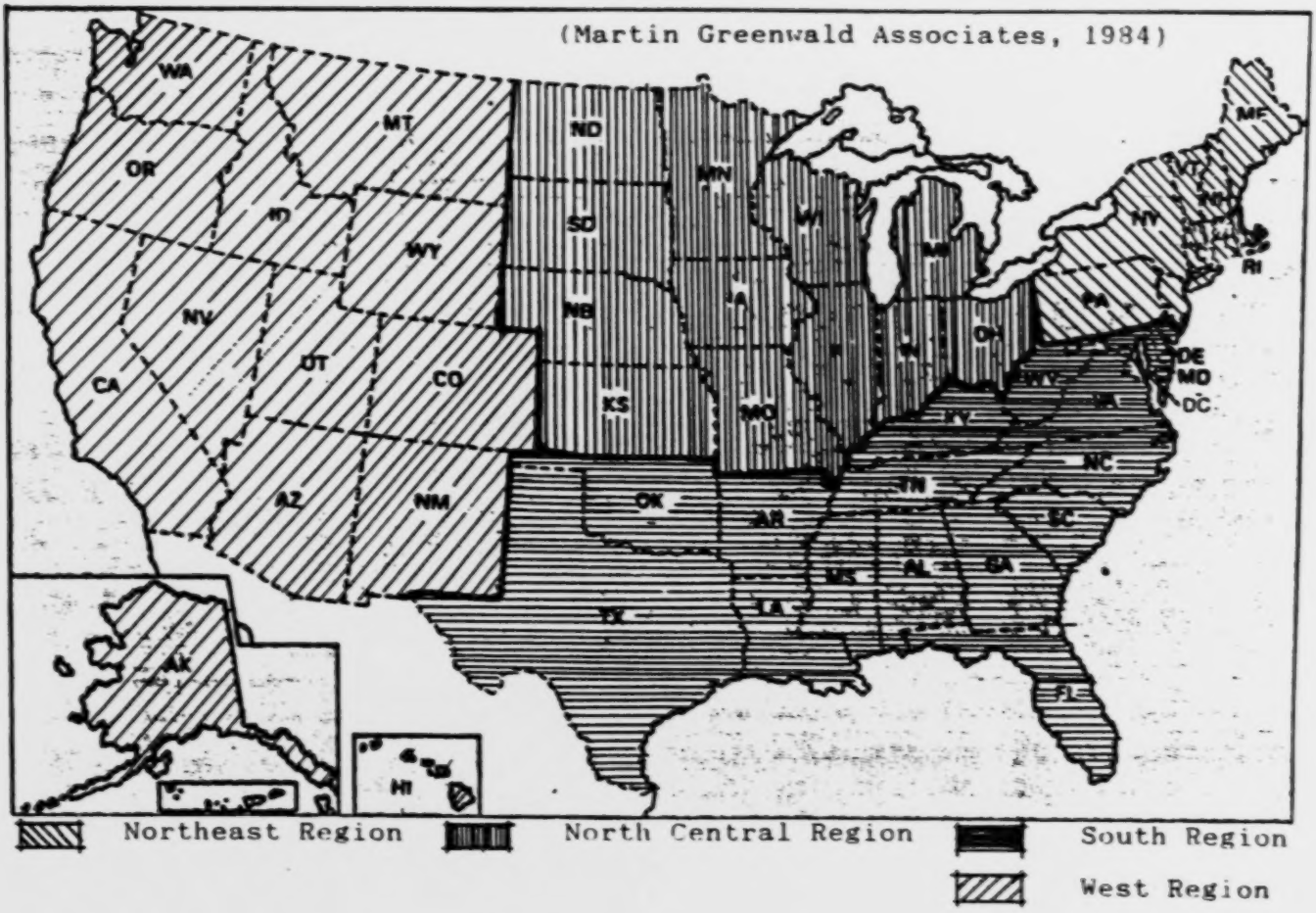


FIGURE 2 - THE FOUR REGIONS OF THE UNITED STATES

[1]Richard Chenoweth, "Stewards of What?," Landscape Architecure Magazine 76 (January/February 1986):132.

[2]Ibid., p. 132.

[3]The Oxford English Dictionary, eds. James A. H. Murray, Henry Bradley, W. A. Craigie, and C. T. Onions, (Oxford: University Press, 1961), p. 938.

[4]1985 ASLA Members Handbook, ed. Teresa M. Morris, (Ohio: Ecocenters Corporation, 1985), p. 284.

[5]Ibid., p. 271.

[6]Ibid., p. 284.

[7]Ibid., p. 276.

[8]Ibid., p. 283.

[9]Ibid., p. 281.

[10]Ibid., p. 275.

[11]Ibid., p. 278.

CHAPTER II

RELATED RESEARCH AND LITERATURE

Citizen Participation and the History of Environmental Concern

After the publication of Silent Spring, a host of laws was passed to help protect the environment: the Clean Air Act in 1963; the Wilderness Act in 1964 establishing the National Wilderness Preservation System; the Water Quality Act and Solid Waste Disposal Act in 1965; and the National Environmental Policy Act (NEPA) in 1969. This was just the beginning of the Federal Government's acknowledgement of the problems the nation had to face.

It was not just the regulation of hazardous substances that was being legislated, however. State and local governments joined the movement. "Bottle laws" were passed in several states requiring payment of a deposit on glass or aluminum beverage containers as an incentive to return the containers for recycling. Money was offered on a per pound basis for products that could be recycled such as paper, metals, glass, and plastics. Many of these monetary incentives continue today.

Responses in the resources and environmental fields began to take place. One response was focused upon the more effective use of existing institutions. More constructive use of public hearings through improved information programs and the staging of meetings at more convenient times and places helped agencies such as the U.S. Army Corps of Engineers and USDA Forest Service to facilitate citizen involvement (Sewell, 1976).

Another response was enactment of new legislation making it mandatory that the views of the public be actively sought (Sewell, 1976). In many cases, rules and procedures for this purpose were written. NEPA's statutory requirements for full disclosure of possible environmental impacts of proposed federal policies and projects is a good example of this type of legislation.

A third response was the undertaking of research to discover improved means of obtaining inputs from the public. The Army Corps of Engineers, the Forest Service, and the National Water Commission are just a few of the federal agencies that have undertaken investigations in this area (Sewell, 1977).

As a result of federal laws being passed which either require or encourage citizen participation, some agencies set up special divisions in charge of citizen participation programs, of which the USEPA and OEPA are only two.

Citizen demonstration of environmental concern continued through the seventies but began to lose some momentum until Love Canal made the headlines in the late 1970's. It was the residents of the Love Canal area who directed the attention of government officials to hazardous substances rising to the surface, seeping into basements, and migrating from the site. Names such as Times Beach, Missouri; Mount Claire, New Jersey; Schwartz Creek, Michigan; Holbrook, Massachusetts; and most recently, Woburn, Massachusetts, have captured the nation's attention.

The Roots of Environmental Perception, Concern, and Behavior Research

The early 1970's mark the beginning of a concerted and more sophisticated effort being expended on research into environmental interest, concern, and protection. Within the last fifteen years, some social scientists have begun to direct their research toward developing a more comprehensive picture of the environmentally concerned individual. Not only have socioeconomic and personality factors been explored, but researchers have also tried to correlate verbal commitment, actual commitment, attitudes, and knowledge.

The approaches to the research essentially have been of two kinds: the belief that environmental preservation would

best be served though behavior change rather than attitude change and the alternate viewpoint that focused on attitude change as the means of protecting the environment (Feimer, et al., 1983).

Some reseachers (Maloney et al., 1973) have argued that the current ecological crisis is best understood as a crisis of maladaptive behavior and that the most effective approach would be the systematic study of the process of behavior change as it relates to these maladaptive behavior patterns. Utilization of behavioral-intervention strategies depends, in part, on the recognition by the individual that it is in his or her best interest to use these procedures. Established habits that are institutionally sanctioned could be threatened by such techniques, thereby rendering these techniques ineffective (Weigel, 1983).

Countering that viewpoint, arguments for the modification of attitudes have also been made. It is argued that information and knowledge could not only challenge existing attitudes but also provide a medium in which proenvironmental behavior can be cultivated. Not only should knowledge be provided about an issue but information regarding both the type of action implied by that knowledge and specific guidance as to the apply that action as well (Weigel, 1983).

Research Considerations

Research on environmental concern is not without its flaws. Some problems considered to be central in the research being conducted have been identified by Lowenthal (1972). Concerned with the necessity for research to consistently cross different research discipline's philosophies, vocabularies, and research expectations, Lowenthal (1972) has maintained that much of the research in environmental perception and behavior has lacked these commonly accepted definitions, objectives, and mechanisms. Without these commonalities, the application of research results will not meet the needs of environmental planners and decision-makers.

Lowenthal (1972) cited a problem with definition and scope in research. Research in environmental perception and behavior has often concentrated on one particular parameter of human response--preference, judgment, disposition, or behavior--in one type of situation, leaving the connections between the studies unexplored. An accepted method of classification of groups of variables such as modes of experience, individual and group dispositions, and environments has been deemed necessary not only to utilize the vast amount of data already gathered but also that of the future.

In his discussion on the fundamental problems of classification and categorization of diverse types of

subject matter, Lowenthal (1972) maintained that expectations and behavior relate to social and physical environments combined, not as isolated entities--a viewpoint that is diametrically opposed to that of many disciplines. He has called for "a more specific understanding of cultural and natural linkages in order to cope holistically with environmental dispositions, beliefs, and actions."[12]

Research application and communication have also been considered to be problems with research (Lowenthal, 1972). Concerned about the lack of consensus about which of the different kinds of information generated by environmental perception and behavior research are most usable by environmental managers, Lowenthal (1972) contended that each research study should include statements concerning not only the reliability of the data but the extent to which different situations may affect its generalization and use.

In the research on attitude and behavior, there is common agreement among researchers that an attitude

> ...represents a relatively enduring set of acquired beliefs and feelings about an object that predispose the attitude holder to act in a particular way toward the object.[13]

If one were to make the intuitive assumption that attitudes are based on evaluative predispositions assumed to have an effect on understanding and predicting human behavior, it is therefore not unreasonable to assume that a person possessing strong attitudes about the importance of protecting and enhancing the quality of the environment

would be expected to behave in ways consistent with not only the direction but also the intensity of those attitudes.

There is, however, growing concern about the value of attitude data in environmental policy research (Lowenthal, 1972; Weigel, 1983). This concern stems from the frequent study reports of low or nonsignificant correlations between attitude and behavior measures. Social scientists interpreted this inconsistency in a variety of ways. One viewpoint held the inconsistency to be reflective of the minimal utility of cognitive constructs as a means for understanding human behavior. Fellow researchers were urged to direct their studies toward overt behavior. Another view suggested that attitudes were a viable construct that merited study regardless of their relationship to overt behavior--attitudes and actions were integral components of the human experience (Weigel, 1983).

A shift from an examination of whether or not attitudes were related to behavior to an examination of the conditions under which attitudes and behavior covary was the focus of yet a third response to the problem of inconsistency. From this change in direction arose three types of issues:

> ...methodological problems with past attitude-behavior research that could have exaggerated the inconsistencies observed
> ...the role of other variables that, when operative, could counteract and obscure the impact of attitudes on behavior
> ...the need to establish conceptually appropriate behavioral criterion measures.[14]

Consideration of methodological problems of past research takes into account several factors. Investigations may not have considered the difference between a person stating an organization's policies or norms and the person acting for him or her self, which could indicate a discrepancy between organizational policy and individual behavior. Another factor could be that the reason why a low correlation between attitude and behavior was obtained is because a poor quality attitude measure was used. That is, the studies purported to examine the relationship between attitude and actions did not specifically provide evidence of the internal consistency of the measure for the current sample as well as for an independent sample (Weigel, 1983).

An attitude is only one attribute of the person--other relevant personal and situational variables can impact attitude and behavior assessments. Personal characteristics including motivational states, intelligence, activity level, dispositions toward other objects represented in the situation, expressive style, and knowledge of behavior-relevant information. Situational variables such as social norms pertaining to appropriate behavior, probable consequence of various acts, and expectations of others in the situation could conceivably play a much greater role than an attitude in determining behavior (Weigel, 1983).

The problem with behavioral criteria was created with the prediction of behaviors through incongruent use of

attitude measures. Measures designed to assess attitudes toward a highly specific object or behavior should predict the behavioral responsiveness to that object only or the likelihood that the individual will engage in the specified behavior. When the attitude-object is a general or comprehensive one, the behavioral criterion should be equally general or comprehensive (Weigel, 1983).

Weigel (1983) maintains that two conditions should therefore be demonstrated in research on attitude-behavior relationships. First, researchers must demonstrate that a high-quality attitude measure was employed; they should supply evidence of the internal consistency of the attitude measure used. Second, behavioral criteria should reflect an action of comparable scope to the attitude assessed.

Populations and Evaluation Instruments Used in Environmental Concern Research

Populations and Their Selection

A wide range of populations has been used in environmental concern research. Some research has focused on specific professions. Engineers and public health officials were studied by Sewell (1971). Natural resources managers and conservationists have also been studied (Craik, 1970). Hall et al., (1969) focused their attention on

architects. Landscape architects were studied by Johnson (1987) and Ruiz (1986).

Many studies, however, use portions of a general population. Residents of the states of Wisconsin (Buttel et al., 1978; Larson et al., 1981) and Iowa (Albrecht et al., 1984), an area in central Pennsylvania (Tucker, 1978), cities and towns including Boulder, Colorado (Tognacci et al., 1972), Los Angeles (Maloney et al., 1973; Maloney et al., 1975), and two New England towns (Weigel et al., 1978), and members of three relatively conservative churches in the rural areas around Athens, Ohio (Arbuthnot, 1977), have been used. Research involving students has been the most common (Maloney et al., 1973; Maloney et al., 1975; Borden et al., 1978; Wysor, 1983; and Johnson, 1987).

Some studies have prefered to include a "known group" as a control. "Known groups" are those groups of individuals that have demonstrated a commitment to environmental concern. Since their environmental attitudes, knowledge and commitment are generally known, they are used as a basis for comparison with other groups whose attitudes, knowledge and commitment are not known.

Types of known-groups may vary from study to study. Some of the known-groups used have included an outdoor recreation club (Harry et al., 1969), recyclers at a recycling center (Arbuthnot, 1977), Audubon Society (Tucker, 1978), two Madison, Wisconsin-based environmental groups,

members of the local boards of directors of several state and national environmental organizations, and members of the environmental subcommittees of a Madison, Wisconsin-based community-action organization (Larson et al., 1981), and environmental studies students at Western Washington University (Wysor, 1983). The Sierra Club, however, is by far the favorite used in environmental concern research (Maloney et al., 1973; Maloney et al., 1975; Arbuthnot, 1977; Weigel et al., 1978; and Tucker, 1978). The most common method for participant selection has been the solicitation of the entire group.

The most common method of non-known-group population selection used in environmental concern research has been that of a stratified random selection procedure. Most of the research conducted has been based on a stratified random selection of at least one of the populations targeted for study if more than one population was used (Harry et al., 1969; Tognacci et al., 1972; Maloney et al., 1973; Maloney et al., 1975; Buttel et al., 1978; Heberlein et al., 1981; Larson et al., 1981; Albrecht et al., 1984; Ruiz, 1986; Johnson, 1987). When more than one population has been used in a study, quite often there was a mixture of selection procedures (Maloney et al., 1973; Maloney et al., 1975; Larson et al., 1981; and Albrecht et al., 1984).

Although other methods have been used, they are not as popular. Solicitation through local newspaper

advertisements and the community announcement services of a local radio and television station have also been used (Tucker, 1978). One study (Honnold, 1984) used existing data from the National Opinion Research Center General Social Surveys. The literature reflecting studies involving students did not indicate precisely how the participants were selected.

Sample sizes varied anywhere from 27 people (Tucker, 1978) to 548 (Buttel et al., 1978).

Evaluation Techniques and Instruments

Evaluation techniques for obtaining research data have been primarily of two kinds. Generally, either the researcher and/or some assistants observed participants' behavior or participants contributed information as a self-report. Observation techniques have been either obtrusive or unobtrusive. Often, observation has been combined with either interviews with the participants or the administration of questionnaires (Tucker, 1978; Heberlein et al., 1981). Most research on environmental concern has utilized a mailed, self-report questionnaire method of data gathering (Harry et al., 1969; Tognacci et al., 1972; Maloney et al., 1973; Maloney et al., 1975; Arbuthnot, 1977; Weigel et al., 1978; Larson et al., 1978; Albrecht et al., 1984). Self-report questionnaires have also been

administered in the presence of an interviewer who was present to answer questions (Tognacci et al., 1972).

Numerous testing instruments have been employed in environmental concern research. Often, researchers who used more than one existing testing instrument combined personality research with environmental concern (Wysor, 1983) or used other scales to determine sociopolitical ideologies (Tognacci et al., 1972).

Weigel and Weigel's Environmental Concern Scale (ECS) (Weigel et al., 1975; Weigel et al., 1978) and Maloney, Ward and Braucht's Environmental Attitude and Knowledge Scale (EAKS) (Maloney et al., 1973; Maloney et al., 1975) have been used most often by researchers of environmental concern. Researchers have selected portions of the ECS or EAKS (or both) for inclusion in their studies (Borden et al., 1978; and Wysor, 1983).

Helmreich and Stapp's Personal Attributes Questionnaire has been used to assess masculinity and feminity independently (Borden et al., 1982). Albrecht et al. (1984) used the New Environmental Paradigm scale in their research. Still others have used self-created instruments (Arbuthnot, 1977; Heberlein et al., 1981; Larson et al., 1981).

Research on Socioeconomic Variables

Perhaps some of the more basic research into environmental concern has been in the area of socioeconomic factors. Within the last ten years age, education, political ideology, and residence have been selected as the "best predictors of concern with environmental quality,"[15] contrary to earlier findings that such variables were poor predictors of concern (Tognacci et al., 1972).

Some researchers have attempted to develop a profile of environmentally concerned individuals. The tentative profile that arose from the two studies conducted by Tognacci et al., (1972) and Buttel et al., (1978) suggested that environmentally concerned people are not only more liberal sociopolitically, but are also younger and better educated than people who are less concerned about environmental issues, indicating that desired socioeconomic status may be directly related with environmentalism.

Although the combination of the three major indicators of social class--education, income, and occupation-- was found to exhibit little net effect on environmental attitudes in the study performed by Buttel et al., (1978), education explained virtually all of the variance. Other research performed by Arbuthnot (1977) did not support this finding.

Occupation and income were less closely tied to environmental concern in these studies. Data from the

Buttel et al. (1972) study indicated, however, that mass environmental beliefs may be better characterized as generational--as opposed to class--interests. This emphasizes the fact that different conclusions can be made from approximately the same data base, since their data seemed consistent with the findings of most previous statewide and nationwide studies.

Age has also received research attention as a factor in environmental orientation. Generally, a negative relationship between age and environmental orientations has been revealed (Harry et al., 1969; Tognacci et al., 1972; Arbuthnot, 1977; Buttel et al., 1978; and Honnold, 1984)--that is, as one ages there is a decrease in environmental concern.

Honnold (1984) has suggested that there are two major explanations which account for the relationship between age and environmental concern. She has stated (and Buttel agrees) that (1) the young are less integrated into the dominant social order and are therefore more willing to take the risk that the support of anti-establishment social movement entails and (2) that important historical events, especially those which occur during the crucial adolescent and young adult phases can permanently affect an individual. Interestingly, Kinnear et al. (1973) and Tucker (1978) found age to be an insignificant predictor of environmental orientations.

Household income has also been used in several environmental studies. Members of conservationist groups tended to be from higher income brackets than the nonconservationists studied by Harry et al. (1969). Kinnear et al.'s findings in their 1973 study support the relationship between environmental concern and income. Tucker (1978), however, found income to be a strong predictor of environmental concern only in the environmental groups studied. He has postulated that the lower average income associated with the municipalities from which the general population respondents were drawn may account for this difference.

Occupation as a factor in environmental concern has received less attention than the other socioeconomic variables. Buttel et al. (1978) discovered that the occupation of the head of household showed no major relationship to either awareness of environmental problems or support for environmental reform. There were no clear-cut white-collar/blue-collar differences in either dimension of environmental concern.

Measurement of differentiation by sex for environmental concern has been attempted to a small degree. While Arbuthnot (1977) found no difference between the sexes in his study of recyclers, a significant effect of sex on environmental knowledge was found in the Borden et al., (1982) study, with males scoring higher on this measure. A

comparison between the sexes of knowledge scores with either verbal or actual commitment revealed no correlation, however.

In summary, the current research literature seems to indicate that a tentative profile of the environmentally concerned citizen can be developed. The environmentally concerned citizen seems to be an individual who holds more liberal beliefs sociopolitically and religiously, is more politically active, younger and better educated, and belongs in the middle-middle and upper-middle income brackets. Females who fit this profile also seem to be substantially more extroverted, with the opposite being true for the males who fit this profile.

Personality Research: Attitudes, Commitment, and Knowledge

Some research into the personality factors which might predispose an individual toward environmental involvement has been conducted. Borden et al. (1978) used a combination of personality and sex to determine differences in environmental concern.

While making no distinction between levels of involvement between the sexes, Borden et al.'s research revealed that high environmentally concerned females were substantially more extraverted than females low in environmental concern. This relationship was reversed for

males, with high environmentally concerned males tending to be more introverted than their counterparts. There was no difference between the sexes in adjustment via social conformity, capacity for independent thought and action, or Super-Ego Strength (seriousness, responsibility and conscientiousness).

Environmental activism (commitment) was investigated by Larson et al. (1981). In measuring political and household environmental activism, Larson et al. found pro-environmental activism in the political process to be a more sensitive and accurate gauge of commitment to solving environmental problems than pro-environmental activism in the household.

Other research has taken a step further toward integrating attitudes with knowledge and behavior. Arbuthnot (1977) combined his research in personality and environmental attitudes by testing personality, attitudes, and knowledge. He found that the recyclers were more liberal-minded and flexible in their behaviors and beliefs, more environmentally cynical and responsible, and more knowledgeable about specific environmental issues.

Heberlein et al. (1981) found a tendency for consistency among environmental beliefs held by an individual as well as between beliefs and behavior. The data also suggested that in the absence of constraints (such

as laws, sanctions, and technology), attitudes and behavior show particular consistency.

In attempting to identify correlations between emotionality, knowledge, and verbal versus actual commitment, Maloney et al. (1973; and Maloney et al., 1975) made some interesting discoveries.

Maloney et al.'s data suggested that most persons have a relatively high level of verbal commitment and emotionality, with lower levels of actual commitment and knowledge. In other words, most people are very emotional when they say they are willing to help solve environmental problems but actually do fairly little and know even less.

Bickman's research (1972) on behavioral and attitudinal aspects of littering confirms Maloney et al.'s findings that there is a great disparity between expressed attitudes and actual behavior. Subjects were observed as they walked past litter "planted" directly in the path so that they had to walk over or around it at two locations on the Smith College campus. Every fifth subject was interviewed with the key question being "should it be everyone's responsibility to pick up litter when they see it or should it be left for the people whose job it is to pick it up?" Ninety-four percent (94 of the 101 subjects) responded it was everyone's responsibilty, although only 1.4% (8) of the 506 observed subjects actually picked up the litter.

Sewell (1971) approached the assessment of environmental perceptions and attitudes of engineers and public health officials in a slightly different manner than other researchers. Sewell found that years in the profession, rank and mobility, and attitudes concerning man's relationship with nature were key factors affecting environmental perceptions and attitudes.

Research on Landscape Architects

As has been discussed above, some research on environmental concern has included the personality factor. Personality has been demonstrated to be important in understanding people's motivations and actions. Without it, the meaningful application of research on environmental concern would be severely limited.

In an effort to understand personality factors at operation in LAs, Johnson (1987) selected registered Landscape Architects in the United States to assess personality types through use of the Myers Briggs Type Indicator (MBTI). Johnson compared preferences between male and female LAs as well as LAs and the general public.

In Johnson's examination of women in landscape architecture as a separate subgroup, she found a preference for introversion over extroversion that approached statistical significance. A comparison with the general

public made this preference highly significant. Other significant findings included: women prefered intuition over sensing; women prefered thinking over feeling; and women prefered judgment over preception. The preferences for intuition over sensing and thinking over feeling were highly significant in comparison to the general public. The preference for judgment over perception was statistically significant as well.

In male LAs, Johnson found no significant preference for either extroversion or introversion, although in comparison with the general public this amounted to a highly significant decrease in extroversion. Among LAs, there was an extremely significant preference for thinking over feeling, but when compared with men in the general public no significance was found. Male LAs indicated a significant preference for judgment over perception, which compared significantly with the general public.

A comparison of the male and female professional populations indicated no significant difference between the preference for introversion over extroversion. Women indicated a significantly higher preference for intuition over sensation than the men. Female LAs also showed a significantly higher preference for intuition over the men in the sample. There was, however, no statistically significance between the women's preference for thinking as compared to the men.

In a comparison of introversion versus extroversion preference, Johnson found that there were significantly more introverts among the professional sample than in the general public. She also found that significantly more professionals (LAs) preferred intuition, thinking, and judging over sensing, feeling, and perceiving than would be expected among the general public.

Registered Landscape Architects were also selected for a study regarding attitudes, knowledge and personal involvement in the environmental protection process as citizens. Ruiz (1986) used a stratified random sample of LAs registered and living in the state of Ohio and compared their responses to those of a "known group."

Frequency tabulations of LAs' past and present environmental protection experience indicated a decreasing number of LAs becoming involved--both as citizens and as professionals, which could be reflective of a national trend toward lessening participation. Although the figures indicated that although there was an overall decrease in participation among LAs, more LAs are active as both citizens and as professionals than in the past.

Attitudes expressed by LAs overwhelmingly indicated they were concerned about the quality of the environment. The LAs in the sample perceived a need to become involved in environmental protection. They also felt they would be an asset to an environmental protection group and that

environmental protection is part of their stewardship of the land.

An analysis of socioeconomic variables indicated that while income level tended to support the concerned citizen profile, age and sex did not. Interestingly, ASLA members reported a higher level of current participation than non-members by more than 2 to 1. Although the numbers of LAs demonstrating environmental concern have declined over time, those who reported current activity also reported increased levels of current activity.

[12]David Lowenthal, "Research in Environmental Perception and Behavior," Environment and Behavior 4 (September 1972):334.

[13]Russell H. Weigel, "Environmental Attitudes and the Prediction of Behavior," Environmental Psychology - Directions and Perspectives, Nicholas R. Feimer and E. Scott Geller, eds., p. 257.

[14]Ibid., p. 261.

[15]Frederick H. Buttel and William L. Flinn, "Social Class and Mass Environmental Beliefs - a Reconsideration," Environment and Behavior 10 (September 1978):436.

CHAPTER III

METHODOLOGY

Research Considerations

This study can be classified as descriptive research. Descriptive research is designed to answer questions or test hypotheses in relation to the subject being studied through the collection of data. This research then, by describing some characteristics of attitude, verbal commitment, actual commitment, and socioeconomics in relation to environmental concern, is considered to be descriptive in nature.

Research Design

This research consisted of two phases. Phase I involved the creation of the pilot questionnaire, selection of participants, and the analysis of responses. Phase II required the subsequent revisions made for the target questionnaire, selection of participants, and the analys s of responses. All data for the study were collected by the researcher between the months of September and December 1986.

Populations and Selection

The research populations consisted of Landscape Architects registered and living in their primary state of professional practice: California, Connecticut, Florida, Ohio, or Washington. Ohio was used as the pilot study state. Lists of registered Landscape Architects were obtained from the registration office of each state involved in the study. Each list was reviewed to remove non-residents.

ASLA membership listings by state were provided in the 1986 ASLA Members Handbook. Registration and ASLA membership listings were then cross-checked to remove non-registered members from the ASLA listings.

Two groups of potentially eligible participants were thus created--one group consisted of members of the ASLA, and the other nonmembers. Each group was then divided by sex into two subgroups to reflect the current ratio of males to females. Participants in each subgroup were assigned a number. A random number generating program in the Microdata 7500 mainframe used by Benefit Systems, Inc. in Baltimore, Maryland, was used to produce lists of numbers for each subgroup to reflect the current male to female ratio of registered Landscape Architects in each state. Selected individuals were then renumbered consecutively in order to establish a questionnaire return-control code for use in mailing reminder post cards.

Survey Instrument Considerations and Creation

In Dillman's Total Design Method (TDM) for mail and telephone surveys, he has stressed that three major things must be done to maximize survey response:

- minimize the costs for responding
- maximize the rewards for doing so
- establish trust that those rewards will be delivered

Dillman has suggested five ways to reduce the cost to the respondent:

- make the task appear brief
- reduce the physical and mental effort required
- eliminate chances for embarrassment
- eliminate any implication of subordination
- eliminate any direct monetary cost

These five suggestions were incorporated into the creation of the questionnaires (see Appendix A and B). The instrument was deliberately restricted to three pages printed on the front side only. This required photoreduction of the instrument that did not exceed 15% of the original pages. The number and complexity of the questions were also tightly controlled. The time necessary to complete the questionnaire was estimated to be no greater than 15 minutes.

Great care was taken to make the questionnaire clear and concise. Each section was labeled in a bold typeface in

order to enhance the transition recognition. Instructions for each section were clearly and simply stated immediately below the section head. They also were printed in a bold typeface. Heading abbreviations for allowable response selections were also printed in a bold typeface. Space limitations required the listing of options for the multiple-choice questions to take two formats. Six of the 13 questions were listed as Dillman suggests--in a single column. The other seven more lengthy listings were restricted to two columns.

Chances of respondent embarassment were intentionally minimized. Respondents were assured of their anonymity in the cover letters (see Appendices A and B). Dillman's recommendation for placement of the return-control code on the upper corner of the first page of the questionnaire for each participant was used. Respondents could therefore see that the researcher was not covertly tracking respondents--they could feel free to eliminate the code if it made them uncomfortable. Efforts were made by careful wording to soften any questions that may produce anxiety or embarassment.

Any implication of respondent subordination was eliminated in the cover letter. The researcher made herself subordinate by telling participants that their input was not only important to me but critical to the outcome of this

study as well. Participants were also told that the researcher needed their help.

Direct monetary costs to the respondents were fully addressed in this design. A stamped, self-addressed return envelope was used for the respondents' convenience.

Maximization of respondent rewards was another consideration in Dillman's TDM. Elements constituting reward maximization include:

- showing positive regard
- giving verbal appreciation
- using a consulting approach
- supporting respondents' values
- offering tangible rewards
- making the questionnaire interesting

Positive regard for the respondents was exhibited in the cover letters in the same way respondents' subordination was minimized--by stating that their input was valuable to the outcome of the study. The cover letter for Phase II (Appendix B) differed from Phase I's (Appendix A) in that the Landscape Architects were addressed as such in the salutation as opposed to being addressed simply as a participant. Personalization was increased by the researcher hand-signing each letter in blue ink.

Verbal appreciation was expressed to participants not only by stating that their timely response was appreciated but also by thanking them for helping with the study.

A consulting type of approach was indicated in the cover letter when participants were told they could provide the researcher with valuable information about them and their environmental concern.

Support for participants' values was provided by the nature of the survey--concern for the environment. The participating populations are registered professionals in landscape architecture--a field of environmental management.

Tangible rewards were not offered due to severe financial restrictions.

Considerable effort went into making the questionnaire as interesting as possible to the participants. Not only was the subject of environmental concern considered to be of interest to landscape architects but the potentially thought provoking nature of the questions and statements as well.

Finally, in explaining the various aspects of establishing the respondent's trust, Dillman's TDM isolates three elements:

- providing a token of appreciation in advance
- identifying with a known organization that has legitimacy
- building on other exchange relationships

The TDM recommends offering a copy of the results to the respondents or to decisionmakers who will be making future policies, or a small gift. An acceptable advance token of the researcher's appreciation was offered in the

forms of an expression of appreciation and appeal for repondent consultation in the cover letters.

Identification with a known organization was also established in the cover letters. While both cover letters identified the researcher as a graduate student in Natural Resources at The Ohio State University, the cover letter used for Phase II took the identification a step further. Permission was granted by Dr. Charles F. Cole, Chairman of the Graduate Studies Committee for the School of Natural Resources at The Ohio State University, to allow the researcher to use School letterhead and envelopes for the study (Appendix B). The use of the letterhead and envelopes further legitimized the study for the respondents. Legitimacy was further established by identifying the study as a follow-up to the researcher's Master of Landscape Architecture study.

Use of the letterhead identifying association with The Ohio State University further served to enhance the exchange relationship with the respondents.

The use of appropriate measurement scales for questionnaires is critical to the outcome of the research being conducted. For this research, a combination of Ruiz's Environmental Attitudes scale (EAS) (1986)--which was loosely based on the Weigel and Weigel Environmental Concern scale, and Maloney, Ward and Braucht's Environmental Attitude and Knowledge scale (EAKS) was used. While Ruiz's

EAS was not tested for internal consistency in the 1986 study, it was decided that it should be used again in order that the frequencies found in that study and those found in this study could be compared. Measures were incorporated to strengthen the internal consistency of these items which included testing the items on a pilot group and adjusting the instrument accordingly. EAKS, however, has been demonstrated to retain acceptably high levels of internal consistency in both its original and revised (shortened) forms (Maloney et al., 1975).

The following discussion is limited to the general questionnaire design. Because the research design included a piloting phase for the cover letter and questionnaire, it was expected that changes would be made for the target instrument. Those differences are discussed in the phase in which they occurred.

The questionnaire used in this study consisted of four sections: attitudes, verbal commitment, actual commitment, and socioeconomic (see Appendix A). Nineteen attitude items were taken from Ruiz's EAS, 9 verbal and 9 actual commitment items were taken from EAKS, 7 actual commitment items were created by the researcher, and 9 socioeconomic items were included (4 of which have been used in Harris polls).

A modified Likert scale was used for the items in the attitudes section, since it has been determined that when given the Likert scale, most people tend to cluster in the

Agree, Undecided, and Disagree responses (Saslow, 1982). Item progression was from the general to the specific. Two items were negatively stated, although an additional five questions were designed to display negative attitudes. One EAS item was modified for purposes of clarity.

The EAKS was created at a time when ecology and environment were considered to be synonymous. That no longer being true, whenever the word "ecology" (or any derivation) was used, it was updated to "environment."

The 9 EAKS verbal commitment items consisted of 5 positively worded statements and 4 negatively worded statements. Statements progressed from a more active to a more passive commitment. A response of either True or False was allowed.

Modifications were made to the 9 EAKS actual commitment items changing them from statements to questions. Questions progressed from a more passive orientation to the more active. Allowable responses were modified as well from the original True-False to Yes-No. Three multiple-choice recycling questions were also included. One multiple-choice question regarding current membership in environmental groups was asked.

In addition to the more common socioeconomic items (such as age group, total family income, highest level of education, and sex), other items were included in the last section of the questionnaire. Membership in the ASLA was

asked to determine response rates and any significant correlations to attitudes or verbal and actual commitment. Thinking that perhaps the time spent working and volunteering could impact levels of actual commitment, Jot Carpenter, Professor of Landscape Architecture within the School of Architecture suggested that three questions be asked concerning "pro bono" work, time devoted to civic activities and paid professional work. In addition, Professor Carpenter suggested that one question concerning degree(s) received and school where received should be included. It was thought that this might supply some meaningful data concerning the region of the country where the most (and least) environmentally active LAs surveyed received their college educations.

Survey questions were reviewed by committee members, Dr. Rosanne Fortner, Associate Professor of Natural Resources, Dr. John Disinger, Professor of Natural Resources, and Charlotte Kitchell, Assistant Professor of Landscape Architecture. All committee members are professors at The Ohio State University. Suggestions were made concerning placement of some questions and the wording of others. Changes were made accordingly. Questionnaire format and content were then approved for testing.

Phase I - The Pilot Study

A stratified, random sample of 50 Landscape Architects registered and living in the state of Ohio (out of a possible 223) was used for the pilot questionnaire population. These 50 were evenly divided between ASLA members and nonmembers. Each group was further divided to reflect the current LA male-female ratio in Ohio--four females and 21 males were chosen for each group.

The pilot questionnaire included two open-ended questions at the end of the questionnaire. One was designed to elicit comments on what were perceived to be environmental issues in the participant's community in the hopes of being able to use this input to create additional questions for the questionnaire. The last question was present to elicit comments concerning the questionnaire--length, clarity, etc.

Questionnaires were sent first class mail September 1, 1986. A cover letter (see Appendix A) and a return-addressed, stamped envelope were enclosed. A two week response time was allowed. At the end of that time period, 37 completed questionnaires had been returned (74%). Two questionnaires were returned by the post office as unforwardable (4%).

Dillman (1986) states that without follow-up mailings, response rates would be less than half those normally attained by the TDM (which is estimated at 77%). TDM

follow-up procedures include three carefully timed mailings. The first mailing involves a postcard reminder being sent to everyone. The second mailing consists of a letter and replacement questionnaire being sent only to nonrespondents. The third and final mailing incorporates a letter and replacement questionnaire being sent by certified mail (to emphasize its importance).

Despite the fact that no reminder post cards were sent because of the unusually high rate of initial return, lack of finances, and time restrictions, the return rate of 74% is very close to the 77% average Dillman states can be achieved if the TDM is closely followed. (In fact, if one were to factor in the unforwardable questionnaires, the total response rate of 78% is slightly better than Dillman's TDM average.)

Instrument Revision

Questionnaires were subjected to a multi-phased review and revision procedure. Questionnaires were first scanned by the researcher for completeness. Those questions that had response options insertions by the respondents were updated to reflect a more satisfactory range of options.

Verification of internal consistency on the attitude, verbal commitment, and actual commitment questions was conducted. The alpha coefficient for the 12 actual commitment statements was increased from .686 to .714 by

adding a statement concerning recycling. Differences occuring between the EAKS-revised coefficients and those of the current pilot study may have been caused by a number of different things. They could have occurred because the questions used in the current study for verbal commitment were originally statements in the EAKS model. They may have also arisen because of a reduction in the number of statements contained in both the verbal and actual commitment scales of the current instrument (as opposed to the number in the EAKS-revised model). Reliability coefficients also exhibit decreases when respondents perceive more than one question to be asking the same thing. Because the sample size was small, the results listed in Table 1 may be considered preliminary at best.

TABLE 1

Comparative Scale Results of Internal Validity Testing*

	EAKS-Revised (n unknown)	Current Study (n=35)
Attitude	---	.734
Verbal Commitment	.805	.655
Actual Commitment	.888	.686

*based on Cronbach's Alpha

Next, questionnaires were scanned for any notations made by respondents on the questionnaire. Comments were recorded and the frequencies tallied. Those questions receiving more than 5 similar comments were reviewed for modification. All other questions remained the same.

Finally, the two open-ended questions at the end of the questionnaire were reviewed. Here again, comments and suggestions were recorded and tallied. Those responses indicating perceived community environmental problems receiving 5 or more citings were to be considered for inclusion in the survey--there were none. There were no negative comments concerning the format of the questionnaire or its overall clarity. Specific questions were occasionally cited as being perceived as similar in nature. They were not modified because they were designed to be that way.

Phase II - The Target Study

Tables 2 and 3 depict the stratification of the sample of LAs chosen to participate in the target study. One hundred LAs were selected from each of the four states, with 50 being ASLA members and 50 being non-ASLA members.

TABLE 2

Eligible and Selected ASLA Members by State

	Eligible		Selected	
	Male	Female	Male	Female
California	682	99	43	7
Connecticut	61	17	39	11
Florida	334	48	44	6
Washington	91	22	40	10

TABLE 3

Eligible and Selected Non-ASLA Members by State

	Eligible		Selected	
	Male	Female	Male	Female
California	797	163	41	9
Connecticut	61	13	11	9
Florida	199	26	44	6
Washington	78	26	37	13

Although Dillman (1978) indicates that hand-addressed envelopes are preferable, it was decided that names and addresses of participants should be computer generated not only because of the sample size but also to fully utilize existing technology. Names and addresses were entered onto a diskette by use of Peachtext programs on an IBM personal computer (PC).

As with the pilot study, Dillman's TDM was not strictly followed for the target study. The revised questionnaire and cover letter (Appendix B) were mailed fourth class mail from the Columbus campus of The Ohio State University on October 21, 1986. After two weeks, a total of 80 questionnaires had been returned (reflecting 20% of the total mailed). California's respondents totaled 8, Connecticut's 27, Florida's 16, and Washington's 29.

A reminder post card (Appendix B) was sent first class mail on November 5, 1987, to all nonrespondents (as determined through use of the return-control codes on the questionnaires). An additional 88 completed questionnaires were received by the deadline, bringing the total number of respondents to 168 (or 42%). Many respondents noted that they had received the questionnaire either just before or after the deadline. The decision was made to allow late respondents to participate, thereby increasing the number of respondents by 16 to a total of 184 (or 46%). No questionnaires were returned as unforwardable because of the

bulk mail status. Therefore, it is unknown exactly how many questionnaires reached their destination. A return rate of 46% may still be considered to be good for not having strictly adhered to the TDM--46% is more than half of the TDM return rate of 77%.

A visual review of the questionnaires was conducted by the researcher to verify completeness of information. The decision was made to allow an occasional question to be left unanswered while those questionnaires that had either entire sections or pages left unanswered would be removed from the study. Five questionnaires were removed for these reasons, leaving a total of 179 respondents (or 45%).

Data Review

The coding of questionnaire responses was performed by the researcher. Codings were verified for accuracy visually by the researcher at a later date before statistical analyses were performed.

Data Analysis

Data generated by the questionnaire responses were entered on-line into the mainframe computer system at The Ohio State University for analysis using the Statistical

Package for the Social Sciences Information Analysis System (SPSS^x), (SPSS, Inc., 1986).

Scores for the attitude (ATT), verbal commitment (VC), and actual commitment (AC) sections were a result of recoding negatively stated questions. Scores were then divided into three categories: low, moderate, and high. Table 4 details the ranges used for each section. Four items were selected as being representative of locus of control (LOC): (1) concern for the environment is solely the job of the government, (2) all citizens should be encouraged to demonstrate their concern for the environment, (3) in general, I consider environmentally concerned groups to be effective, and (4) there's nothing I can do as a citizen to demonstrate my concern for the environment. When comparing LOC with ATT, the LOC items were deleted from the ATT scores.

Two AC items that dealt with attendance at meetings were: (1) do you attend meetings concerned with a better environment and (2) have you ever attended any meetings of an organization specifically concerned with bettering the environment. Realizing that these two AC items could weigh in favor of the ASLA members, for comparison purposes the AC scores were calculated two ways: including the two items and excluding the two items.

TABLE 4

Ranges for Attitude and Verbal and Actual Commitment Scores

	Low Range	Moderate Range	High Range
Attitude Scale	1-5	6-11	12-19
Locus of Control Scale	1-2	--	3-4
Verbal Commitment Scale	1-3	4-6	7-9
Actual Commitment Scale	1-4	5-9	10-13

Various socioeconomic variables also were "collapsed" for purposes of crosstabulation. The seven allowable responses for membership in environmental groups were compressed into three groupings: no membership, membership in one to three groups, and membership in four or more groups. "Pro bono work" was compressed into three groupings: no work, one to ten hours per month, and 11 or more hours per month. "Civic activities" was compressed to reflect three groupings: less than two hours per month, three to ten, and 11 or more. Hours per work week were also compressed into three groups: less than 20 (which includes retirees), 21 to 40, and 41 or more. Age groups were compressed into four groups: under 25, 26 to 45, 46 to 65, and 66 or older. Finally, income was compressed into three groups: less than $15,000, $15,001 to 35,000, and $35,001 or more.

Frequencies were calculated for all questions on the survey. Cronbach's alpha was used to test the attitude, verbal commitment, and actual commitment questions for internal consistency. A total of four attitude questions considered to be indicative of locus of control were identified and scored separately. Two ranges were created to reflect either external (3 to 4) or internal (0 to 2) locus of control. Chi-square tests of independence were used to test the attitude and actual commitment score variables against the socioeconomic information provided by the respondents as well as the locus of control scores.

Cross-tabulations were performed for those questions in the verbal and actual commitment scales that directly related to each other. Analysis of variance was also used to see if significant differences in actual and verbal commitment scores existed for ASLA members and nonmembers. T-tests were employed to detect differences between verbal and actual commitment scores for the population as a whole, ASLA members, and nonmembers.

CHAPTER IV

RESULTS

Internal Reliability

Attitude, verbal commitment, and actual commitment items for the target group were tested for reliability using Cronbach's alpha. A decrease from the pilot to the target study in attitude reliability (.7336 (n=35) to .5684 (n=169)) was found. Verbal commitment reliability also decreased somewhat from .6547 (n=35) to .6417 (n=179). Actual commitment reliability, however, increased from .6861 (n=35) to .7627 (n=179). The addition of the recycling question also caused the reliability to increase somewhat from .7143 (n=35) to .7436 (n=179).

As with the results of the reliability test of the pilot questions, the changes in the reliability coefficient could have been caused by changes made in the questions, increase in the sample size, and the fact that the attitudes section was designed to be more general in nature than the other two sections. Reliability has been found to decrease when respondents perceive more than one question to be asking the same thing when in actuality the questions are only similar, not the same. Respondents have a tendency to

respond to similar questions the same way, thereby reducing the reliability of the questions. The actual commitment reliability is considered to be acceptable, while the attitude and verbal commitment questions are less acceptable.

Frequencies

Attitudes

Overall frequencies for repondents were tabluated. Table 5 lists the 19 attitude items and the corresponding frequencies.

TABLE 5

Attitude Scale Frequencies*

	Agree	Undecided	Disagree
1. Concern for environment very important (n=179)	98	1	1
2. Environmental problems have been exaggerated (n=179)	4	16	80
3. Concern is solely job of government (n=178)	0	2	98
4. Everybody contributes to environmental problems (n=178)	92	3	5
5. Big business will do what it wants environmentally (n=178)	15	21	64
6. All citizens should be encouraged to participate (n=179)	92	5	3
7. We're fighting a losing battle environmentally (n=179)	14	26	60
8. I am environmentally aware (n=178)	91	8	1
9. Environmental groups are effective (n=177)	53	38	9
10. I would be an asset to a group because of my professional background (n=178)	77	18	5
11. LAs frequently demonstrate concern as citizens (n=179)	67	16	17

Table 5 (continued)

	Agree	Undecided	Disagree
12. Environmental groups are radicals (n=176)	6	14	80
13. Nothing I can do as a citizen (n=179)	1	3	96
14. LAs don't have enough science background (n=179)	12	20	68
15. ASLA encourages LAs to demonstrate concern (n=179)	55	33	12
16. LAs are in an excellent position to help as citizens (n=178)	85	12	3
17. I am a concerned citizen (n=179)	92	7	1
18. Just as important for everybody not just LAs (n=178)	91	4	5
19. Stewardship includes demonstration of concern (n=178)	92	6	2

*reported as percentages

Verbal Commitment

The verbal commitment portion of the questionnaire consisted of 9 statements requiring either an answer of True or False. Frequencies were tabulated for all respondents. Table 6 contains the frequencies with no group detail.

TABLE 6

Verbal Commitment Frequencies*

	True	False
1. I would ride a bicycle or bus to work to reduce air pollution (n=179)	59	41
2. I would not join an environmental group or club (n=179)	27	73
3. I would use rapid transit if available to reduce pollution (n=179)	80	20
4. I would not stop driving on weekend due to air pollution alert (n=179)	29	71
5. I would donate a day's pay to a foundation to improve environment (n=177)	55	45
6. I would write my congressional representative about environmental problems (n=179)	94	6
7. I would not go house to house distributing environmental literature (n=178)	74	26
8. I would not pay pollution tax even if it helps decrease problems (n=177)	19	81
9. I would stop buying products from polluting companies even if inconvenient to me (n=179)	93	7

*reported as percentages

Actual Commitment

The actual commitment section of the questionnaire consisted of 12 questions requiring either 'Yes' or 'No' for an answer and three multiple choice questions. The multipart question concerning recycling is displayed reflecting the parts as subsets in Table 7.

TABLE 7

Actual Commitment Frequencies*

	Yes	No
1. Make an effort to buy products in recyclable containers (n=179)	63	37
2. Buy certain products because they are less likely to pollute (n=178)	78	22
3. Switched products for environmental reasons (n=179)	72	28
4. Belong to an organization concerned with environmental issues (n=179)	60	40
5. Attend meetings for better environment (n=179)	40	60
6. Keep track of representative's voting record on environmental problems (n=179)	47	53
7. Subscribe to environmental publications (nonASLA) (n=179)	45	55
8. Contacted agency to become involved (n=178)	24	76
9. Written to representative about environmental problems (n=179)	38	62
10. Ever joined a cleanup drive (n=179)	47	53
11. Attended meetings related to environment (nonASLA) (n=179)	65	35
12. Attended meetings of organization specifically concerned with the environment (n=177)	55	45

Table 7 (continued)

	Yes	No
13. Do you recycle (n=179)	88	12
- used motor oil (n=157)	28	72
- aluminum (n=157)	63	37
- other metals (n=157)	24	76
- newspapers (n=157)	73	27
- other paper products (n=157)	21	79
- glass (n=157)	43	57
- plastics (n=157)	7	93
14. Recycle frequency: (n=151)		
- occasionally	44	--
- regularly	58	--
15. Reasons for recycling: (n=153)		
- get a little cash	1	--
- help the environment	57	--
- both money and help environment	25	--
- other reasons	10	--
- help environment and other reasons	6	--
- help environment, extra money, and other reasons	1	--

*reported as percentages

Socioeconomic Variables

Background characteristics were collected in order to account for differences among attitude, locus of control, verbal commitment, and actual commitment scores. All characteristics displaying significant differences were tested for interaction of those characteristics and scores. Frequencies tabluated for all respondents are found in Table 8.

TABLE 8

Socioeconomic Variable Frequencies*

	Frequency
ASLA membership (n=179)	
Member	61
Nonmember	39
Membership in environmental groups (n=176)	
None	48
1	21
2	19
3	7
4	2
5	1
6 or more	2
Hours per month devoted to 'pro bono' work (n=176)	
None	40
1 to 5	37
6 to 10	13
11 or more	10
Hours per month to civic activities (n=177)	
Less than 2	54
3 to 5	20
6 to 10	16
11 to 15	4
16 or more	6
Average hours of paid work per week (n=178)	
Less than 20	8
21 to 40	29
41 to 50	41
51 or more	22

Table 8 (continued)

	Frequency
Age group (n=178)	
25 or younger	1
26 to 35	35
36 to 45	35
46 to 55	11
56 to 65	12
66 or older	6
Sex (n=178)	
Male	81
Female	19
Total family income in the last 12 months (n=173)	
7,5000 or less	1
7,5001 to 15,000	2
15,001 to 25,000	13
25,001 to 35,000	21
35,001 to 45,000	30
45,001 to 55,000	30
55,001 or more	3
Level of education (n=178)	
High school graduate	1
Some college	5
College graduate	65
Post graduate	29
Undergraduate Degree (n=136)	
BLA	50
BSLA	46
BALA	1
BS	1
Dip. LA	1
Other	1

Table 8 (continued)

	Frequency
Undergraduate School Region (n=125)	
Northeast	23
North Central	15
South	18
West	55
Master Degree (n=39)	
MLA	15
Other	85
Other non-LA degrees (n=34)	
Undergraduate (unspecified)	65
Graduate (unspecified)	26
Both undergraduate and graduate (unspecified)	9

*reported as percentages

Comparative Frequencies

One of the hypotheses on which this research was based was the difference between ASLA members and nonmembers. Attitude scale frequencies were tabulated for both groups and appear in Table 9.

TABLE 9

Attitude Scale Frequencies for ASLA Members and Nonmembers*

	Member (n=110)		Nonmember (n=69)	
	Agree	Disagree	Agree	Disagree
1. Concern for environment very important	99	1	99	1
2. Environmental problems have been exaggerrated	17	83	23	77
3. Concern is solely job of government	3	97	1	99
4. Everybody contributes to environmental problems	94	6	90	10
5. Big business will do what it wants environmentally	36	64	36	64
6. All citizens should be encouraged to participate	93	7	91	9
7. We're fighting a losing battle environmentally	41	59	39	61
8. I am environmentally aware	90	10	93	7
9. Environmental groups are effective	55	45	51	49
10. I would be an asset to a group because of my professional background	78	22	74	26
11. LAs frequently demonstrate concern as citizens	71	29	61	39
12. Environmental groups are radicals	20	80	20	80
13. Nothing I can do as a citizen	4	96	1	96
14. LAs don't have enough science background	32	68	32	68

Table 9 (continued)

	Member (n=110)		Nonmember (n=69)	
	Agree	Disagree	Agree	Disagree
15. ASLA encourages LAs to demonstrate concern	63	37	42	58
16. LAs are in an excellent position to help as citizens	87	13	81	19
17. I am a concerned citizen	94	6	90	10
18. Just as important for everybody not just LAs	90	10	91	9
19. Stewardship includes demonstration of concern	92	8	93	7

*frequencies are expressed as percentages

Verbal commitment items were also tabulated for both ASLA members and nonmembers as part of the group comparison. Table 10 reflects these frequencies.

TABLE 10

Verbal Commitment Frequencies for
ASLA Members and Nonmembers*

	Member		Nonmember	
	True	False	True	False
	(n=110)		(n=69)	
1. I would ride a bicycle or bus to work to reduce air pollution	59	41	58	42
2. I would not join an environmental group or club	25	75	30	70
3. I would use rapid transit if available to reduce air pollution	84	16	75	25
4. I would not stop driving on a weekend due to an air pollution alert	25	75	35	65
5. I would donate a day's pay to a foundation to improve environment	60	40	45	55
6. I would write my congressional representative about environmental problems	94	6	94	6
7. I would not go house to house distributing environmental literature	75	25	74	26
8. I would not pay pollution tax even if it helps decrease problems	20	80	19	81
9. I would stop buying products from polluting companies even if inconvenient to me	93	7	94	6

*frequencies reported as percentages

Fifteen actual commitment items were tabulated for response frequency. These have been differentiated for ASLA members and nonmembers. Frequencies reported as percentages are found in Table 11.

TABLE 11

Actual Commitment Frequencies for
ASLA Members and Nonmembers*

	Member		Nonmember	
	Yes	No	Yes	No
	(n=110)		(n=69)	
1. Make an effort to but products in recyclable containers	64	36	62	38
2. Buy certain products because they are less likely to pollute	78	22	77	23
3. Switched products for environmental reasons	70	30	75	25
4. Belong to an organization concerned with environmental issues	71	29	41	59
5. Attend meetings for better environment	45	55	30	70
6. Keep track of voting record on environmental problems	46	64	48	52
7. Subscribe to environmental publications (nonASLA)	52	48	33	67
8. Written to representative about environmental problems	43	57	30	70
9. Contacted an environmental agency to get involved	27	73	19	81
10. Ever joined a cleanup drive	49	51	44	56
11. Attended meetings related to environment (nonASLA)	68	32	61	39
12. Attended meetings of organization specifically concerned wth environment	56	44	54	46

Table 11 (continued)

	Member		Nonmember	
	Yes	No	Yes	No
	(n=110)		(n=69)	
13. Do you recycle	82	18	87	13
- used motor oil	29	71	26	74
- aluminum	61	39	67	33
- other metals	23	77	26	74
- newspapers	72	28	74	26
- other paper products	21	79	22	78
- glass	37	73	51	49
- plastics	7	93	6	94
14. Recycle frequency:				
- occasionally	32	--	41	--
- regularly	50	--	47	--
15. Reasons for recycling:				
- get a little cash	1	--	0	--
- help the environment	13	--	58	--
- both money and help environment	25	--	17	--
- other reasons	9	--	9	--
- help environment and other reasons	6	--	1	--
- help environment, money, and other reasons	1	--	0	--

*frequencies are reported as percentages

Interactions

Three stages of statistical analyses were conducted on the reported data. Overall analyses were conducted for the population as a whole and compared with selected socioeconomic variables. Group analyses were performed for the two major identified groups--ASLA members and nonmembers. Attitude, locus of control, verbal commitment, and actual commitment scores were tabulated. Individual variables were then selected and analyzed in relation to both the scores and other directly relational questions.

The Population as a Whole

Using the compressed attitude, locus of control, verbal commitment, and actual commitment scores discussed in Chapter III, Chi-square tests of independence were performed (Table 12). Chi-Square testing of attitude, locus of control, verbal commitment, and actual commitment scores for the four participating states were also calculated (Table 13).

Means and standard deviations were calculated for the compressed scores. They were as follows: ATT mean was 2.52 with a standard deviation of .502, LOC mean was 1.81 with a standard deviation of .368, VC mean was 2.51 with a standard deviation of .667, and the AC mean was 1.912 with a standard deviation of .672.

TABLE 12

Chi-Square Testing for Attitude, Locus of Control, Verbal Commitment,and Actual Commitment Scores (n=125)

	ATT	LOC	VC	AC
ATT	.	1.288	1.087	2.050
LOC	1.288	.	8.023[1]	1.283
VC	1.087	8.023[1]	.	18.750[2]
AC	2.050	1.283	18.750[2]	.

[1]Significance ($p < .05$)
[2]Significance ($p < .005$)

TABLE 13

Chi-Square Testing for Attitude, Locus of Control, Verbal Commitment,and Actual Commitment Scores for the Four States (n=125)

	Chi-Sq.	df
ATT	1.252	3
LOC	2.220	3
VC	7.784	9
AC	7.663	9

Socioeconomic variables were then crosstabulated with attitude, locus of control, verbal commitment, and actual commitment to determine the existence of any significant correlations (Table 11).

TABLE 14

Chi-Square Testing Socioeconomic Variables with **Attitude**, Locus of Control, Verbal Commitment and Actual Commitment Scores (n=125)

	ATT	LOC	VC	AC
ASLA Membership	1.522	0.558	0.520	3.552
Environmental Group Membership	0.588	1.075	13.400	34.297
'Pro Bono' Work	0.642	0.335	9.036	12.425[1]
Civic Activities	2.006	3.777	5.536	15.798[2]
Hours Per Work Week	0.193	0.300	8.860	4.523
Age Group	2.021	3.064	12.166	3.140
Sex	0.106	0.000	3.508	1.340
Total Family Income	0.768	1.401	6.537	1.771
Region of Education	10.423[3]	2.984	4.869	2.970

ATT=Attitude LOC=Locus of Control VC=Verbal Commitment
AC=Actual Commitment

[1]Significance ($p < .05$)
[2]Significance ($p < .005$)
[3]Approaches significance

T-tests were conducted to detect the existence of significant differences between attitude, locus of control, verbal commitment, and actual commitment scores (Table 15).

TABLE 15

T-Tests for Attitude, Locus of Control, Verbal Commitment, and Actual Commitment Scores Using 2-Tail Probability (n=179)

	ATT	LOC	VC	AC
ATT	.	38.33[2]	-7.25[2]	-19.36[2]
LOC	38.33[2]	.	15.73[2]	1.57
VC	-7.25[2]	15.73[2]	.	-12.16[2]
AC	-19.36[2]	1.57	-12.16[2]	.

[1]Significance ($p < .05$)
[2]Significance ($p < .005$)

Analysis of variance tests were conducted for attitude, locus of control, verbal commitment, and actual commitment for the four states to determine if a significant difference in scores existed (Table 16).

TABLE 16

Anova for Attitude, Locus of Control, Verbal Commitment and Actual Commitment Scores for the Four States

	Degrees of Freedom	Sum of Squares	Mean Squares	F
Attitude	3	0.117	0.039	0.747
Locus of Control	3	0.298	0.099	0.730
Verbal Commitment	3	1.186	0.395	0.885
Actual Commitment	3	0.885	0.295	0.648

ASLA Membership versus Nonmembership

Means and standard deviations were calculated for the overall population, ASLA members, and nonmembers using the uncompressed scores for ATT, LOC, VC, and AC (Table 17).

TABLE 17

Means and Standard Deviations of Scores for ASLA Members and Nonmembers

	ATT		LOC		VC		AC	
	Mean	STD	Mean	STD	Mean	STD	Mean	STD
Overall	14.73	2.16	3.24	0.77	6.43	1.96	6.23	2.91
Members	15.02	1.90	3.29	0.77	6.49	1.94	6.57	2.97
Nonmembers	14.30	2.46	3.16	0.79	6.34	1.99	5.72	2.74

Both ASLA members and nonmember responses were subjected to Chi-Square crosstabulations of attitude, locus of control, verbal commitment, and actual commitment scores. Table 18 reflects the results for ASLA members and Table 19 reflects the results for nonmembers.

TABLE 18

Chi-Square Testing of ASLA Members
for Attitudes, Locus of Control, Verbal Commitment
and Actual Commitment
(n=110)

	ATT	LOC	VC	AC
ATT	.	1.139	8.563*	14.629
LOC	1.139	.	6.896[1]	1.283
VC	8.563*	6.896[1]	.	21.324
AC	14.629	1.139	21.324	.

ATT=Attitude LOC=Locus of Control VC=Verbal Commitment
AC=Actual Commitment

[1]Significance ($p < .05$)
*Approaches significance

TABLE 19

Chi-Square Testing of Nonmembers for
Attitude, Locus of Control,
Verbal Commitment,and Actual Commitment Scores
(n=69)

	ATT	LOC	VC	AC
ATT	.	0.540	3.567	3.672
LOC	0.540	.	8.880	2.013
VC	3.567	8.880	.	22.476
AC	3.672	2.013	22.476	.

ATT=Attitude LOC=Locus of Control VC=Verbal Commitment
AC=Actual Commitment

Finding a significant correlation in the LA population as a whole, crosstabulations were then performed to determine if 'pro bono' work correlated significantly with other socioeconomic variables for both ASLA members and nonmembers (Table 20).

TABLE 20

Chi-Square Testing Socioeconomic Variables with 'Pro Bono' Work for ASLA Members and Nonmembers (n=125)

	ASLA Member	Nonmember
Civic Activities	45.44[2]	27.95
Hours Per Work Week	3.25	7.17
Age Group	11.02	8.47
Sex	0.58	4.50

[2]Significance ($p < .05$)

T-tests were employed to detect differences between attitude, locus of control, verbal commitment, and actual commitment scores for both ASLA members and nonmembers.

Table 21 contains the results for ASLA members and Table 22 reflects those for nonmembers.

TABLE 21

T-Tests for Attitude, Locus of Control, Verbal Commitment,and Actual Commitment Scores for ASLA Members Using 2-Tail Probability (n=110)

	ATT	LOC	VC	AC
ATT	.	30.45[2]	-5.26[2]	-13.52[2]
LOC	30.45[2]	.	12.68[2]	2.21[1]
VC	-5.26[2]	12.68[2]	.	-92.10[2]
AC	-13.52[2]	2.21[1]	-9.10[2]	.

[1]Significance ($p < .05$)
[2]Significance ($p < .005$)

TABLE 22

T-Tests for Attitude, Locus of Control, Verbal Commitment,and Actual Commitment Scores for Nonmembers Using 2-Tail Probability (n=69)

	ATT	LOC	VC	AC
ATT	--	23.17[2]	-5.03[2]	-14.70[2]
LOC	23.17[2]	--	9.30[2]	-0.45
VC	-5.03[2]	95.30[2]	--	-8.08[2]
AC	-14.70[2]	-0.45	-82.08[2]	--

[1]Significance ($p < .05$)
[2]Significance ($p < .005$)

Analysis of variance was used to determine if attitude, locus of control, verbal commitment, and actual commitment score differences existed between ASLA members and nonmembers. The revised actual commitment score was also tested between the two groups to determine if the deletion of two questions thought to possibly be weighted in the ASLA members favor would change the outcome. Results are found in Table 23.

TABLE 23

Anova for Attitude, Locus of Control, Verbal Commitment and Actual Commitment Scores for ASLA Members and Nonmembers

	DF	Sum of Squares	Mean Squares	F
Attitude	1	3.093	3.093	1.103
Locus of Control	1	30.384	30.384	3.450
Verbal Commitment	1	37.921	37.921	.696
Actual Commitment	1	145.695	145.695	4.881[1]
Revised Actual Commitment	1	98.78	98.78	4.421[1]

[1]Significance ($p < .05$)

Individual Variables

Several questions contained in the questionnaire were specifically designed to have behavioral criteria directly reflect an action of comparable scope to the attitude or verbal commitment assessed (as suggested by Weigel, 1983). Chi-square crosstabulations were performed to determine the existance of any significant relationships (Tables 24, 25, and 26).

TABLE 24

Chi-Square Testing of Relational
Actual and Verbal Commitment Variables

Verbal Commitment	Chi-Square	Actual Commitment
Would not join group or club	22.855[2]	Belong to organization for environment
Would stop buying products from polluting companies	4.397[1]	Switched products for environmental reasons
Would write representative	5.564[1]	Have written to representative

[1]Significance ($p < .05$)
[2]Significance ($p < .005$)

TABLE 25

Chi-Square Testing of Actual Commitment Variables

Actual Commitment	Chi-Square	Actual Commitment
Buy products because less likely to pollute	59.737[a]	Switched products for environmental reasons
Effort to buy products-environmental reasons	9.795[a]	Switched products for environmental reasons
Attend meetings for a better environment	23.647[a]	Attended meetings specifically environmental

[a]Significance ($p < .005$)

TABLE 26

Chi-Square Testing of Attitude Variables

Attitude Variable	Chi-Square	Attitude Variable
LA profession frequently demonstrate concern as citizens	2.558	LAs are in excellent position as citizens to show concern
Environmental concern is solely the job of the government	0.000	All citizens should be encouraged to demonstrate concern

Three other variables were tested for Chi-Square correlations. The attitude expressed for "ASLA actively encourages LAs to demonstrate environmental concern" does not significantly correlate (Chi-Square = 0.026, df=1) with the actual commitment item, "Do you belong to an organization that is concerned with environmental issues?" The attitude that the "ASLA actively encourages LAs to demonstrate environmental concern" does significantly correlate (Chi-Square = 6.520, df=1) with membership in the ASLA ($p < .05$). Membership in the ASLA also significantly correlates (Chi-Square = 14.919, df=1) with the actual commitment item of "Do you belong to an organization that is concerned with environmental issues" ($p < .005$).

CHAPTER V

CONCLUSIONS

The purpose of this study was to examine the attitudes, verbal commitment and actual commitment registered landscape architects have for environmental concern. Overall population, ASLA members, and nonmember frequencies are interpreted. Chi-square tests of independence, T-tests, and analyses of variance results are also reviewed. This discussion of the findings is followed by implications in general and for the ASLA and by recommendations for further research.

Discussion

Attitudes

Attitude item frequency tabulations for the entire population studied revealed on all but two items, that LAs overwhelmingly expressed a positive attitude toward environmental concern (68%). Those two items receiving the least positive reactions were: I consider environmental groups to be generally effective (53%) and The ASLA actively

encourages LAs to demonstrate their concern for the environment (54%).

A smaller percentage of LAs expressed a negative attitude as reflected in several statements. Some of the more negative attitudes included: fifteen percent who stated they felt that big business would do what it wants environmentally no matter what, while fourteen percent thought that we are fighting a losing battle environmentally. Twelve percent thought that LAs don't have enough environmental science background to demonstrate their concern for the environment as professionals in addition to thinking that the ASLA doesn't actively encourage LAs to demonstrate their environmental concern.

Some LAs were not certain how they felt about a number of statements. The statements and their percentages of uncertain LAs are presented in descending order.

> In general, I consider environmentally concerned groups to be effective. (38%)
>
> The ASLA actively encourages landscape architects to demonstrate their concern for the environment. (33%)
>
> We're fighting a losing battle with environmental problems. (26%)
>
> Big business will do what it wants environmentally no matter what. (21%)
>
> LAs do not have enough environmental science background to demonstrate their concern about the environment as professionals. (20%)

I feel I would be an asset to an environmentally concerned group because of my professional training. (18%)

The extent of our environmental problems has been greatly exaggerated. (16%)

I feel members of my profession frequently demonstrate concern about environmental problems as citizens. (16%)

Environmentally concerned groups are a bunch of radicals. (14%)

LAs are in an excellent position to demonstrate their environmental concern as citizens. (12%)

Interestingly, the two attitude questions that received the most nonresponses concerned environmental groups either being effective or a group of radicals (n=177 and n=176 respectively).

Attitudinal scores overall revealed a mean of 14.73 (out of 18 possible), indicating a generally high positive attitude toward environmental concern. Locus of control scores revealed a mean of 3.24 (out of four), indicating a relatively high level of considered control. LOC did not, however, significantly correlate with attitudes as a whole--meaning that a person did not need to feel a strong ability to change or control the existing environmental situation in order to hold a highly positive attitude toward environmental concern.

Of all the socioeconomic variables tested, the region of undergraduate education appeared to play the most

significant part in the level of positiveness for self-reported attitudes. LAs who received their undergraduate education in the West region reflected a significantly more positive attitude level than LAs educated in the other three regions of the United States. Frequencies alone could not accurately reflect this since two of the four states included in this study are located in the West region; rather, the comparison of attitude scores for each region was a more indicative device for validating this result. No other socioeconomic variables were found to be significant indicators of environmental attitudes.

No significant correlations were found that indicated the state of residency and professional practice was a factor in determining attitude levels.

Attitudinally, there was no significant positive correlation between believing LAs to be in an excellent position as citizens to show environmental concern and believing that LAs frequently demonstrate environmental concern as citizens. As was expected, there was no positive correlation between believing that environmental concern is solely the job of the government and that all citizens should be encouraged to demonstrate environmental concern.

With the exception of one question, attitudes expressed by both ASLA members and nonmembers did not deviate by more than 10%. The one question that reflected a 21% difference in opinion was regarding the ASLA's active encouragement of

LAs to demonstrate their concern for the environment. Even this difference in opinion was not statistically significant.

Locus of control scores did not reveal a significant difference between the two groups. That is, members of both groups generally reported having the same attitudes concerning the ability of people to control or change their situations (or in this case, the quality of their environment).

Verbal Commitment

Not surprisingly, frequency tabulations for verbal commitment revealed an overall stated willingness to demonstrate environmental concern. A wide majority (94%) indicated they would write their congressional representative about environmental problems and stop buying products from polluting companies even if it were inconvenient. All other items, excluding two, received similar votes of commitment (ranging from 81% to 59% of the population).

The two items receiving the highest percentages for stated unwillingness to commit were revealing. Although 81% indicated a willingness to pay a pollution tax to help decrease pollution problems, only 55% indicated they would donate a day's pay to a foundation to improve the environment. This could be reflective of the high number of

respondents who were uncertain how they felt about environmental groups.

LAs were also not willing to go house to house to distribute environmental literature (75%). This was not surprising given Johnson's (1987) personality study that revealed LAs to be significantly more introverted than the general public.

With a large minority of LAs either considering environmental groups not to be effective or not being sure how they felt (47%), the generally ambivalent attitude toward environmental groups may also be reflected in the numbers of LAs who do not subscribe to nonASLA environmental publications (55%).

Overall verbal commitment scores had a mean of 6.43 (out of nine) and a standard deviation of 1.96, indicating a relatively high verbal commitment level for the overall population with close to a two point score deviation.

Verbal commitment scores were not found to be significantly correlational with the state of residency or professional practice for LAs.

Verbal commitment by both ASLA members and nonmembers mirrored the frequency results for attitudes. On only one statement did the difference in stated commitment exceed 10%. When responding to the willingness to donate a day's pay to a foundation to improve the environment, 60% of the

ASLA members said they would while only 45% of the nonmembers said they would.

Verbal commitment scores revealed means of 6.19 and 6.34 (out of nine) for ASLA members and nonmembers respectively. With a standard deviation of 1.94 and 1.99 (respectively), only a minor difference in verbal commitment existed between the two groups. No statistically significant differences between the two groups were detected.

Actual Commitment

Actual commitment frequencies revealed a considerable range of participation. Seventy-eight percent of the LAs stated they buy certain products because they are less likely to pollute and 72% stated they had switched products for environmental reasons. Sixty-three percent indicated they make an effort to buy products in recyclable containers.

Recycling was the major activity in which LAs participated (87%). Newspaper (83%) and aluminum (72%) were most commonly recycled, while other paper products (24%) and plastics (8%) were the least. The fact that plastics recycling was the least common recyling activity was not surprising given that the practice is not encouraged due to the limited availability of the process by industry.

Over one-half of the recyclers (58%) stated they recycle regularly. The overwhelming majority of the recyclers (57%) responded that they recycle to help the environment. Less than 7% of the recyclers stated they either did it for the money (<1%) or to help the environment as well as for other reasons (6%).

On a more active level, 65% of the population stated they had attended nonASLA meetings related to the environment, while 55% have attended meetings of organizations specifically concerned with the environment. Indicative of an even stronger willingness to participate, 45% indicated they had joined a cleanup drive.

Two socioeconomic variables were found to positively correlate significantly with actual commitment--'pro bono' work and 'civic activities.' That is, for the overall population, the participation in 'pro bono' work and civic activities indicated an increased level of actual commitment activities. Those who gave of their personal time for other activities also tended to give personal time to matters of environmental concern.

Actual commitment frequencies calculated for both ASLA members and nonmembers revealed very little difference in most environmental concern activities. Most group deviations involved a percentage of 8 or less--with most of these being 2% or less.

The largest difference was reflected in membership in an organization concerned with environmental issues. Thirty percent more of the ASLA members than nonmembers stated they had such a membership. This may be reflective of their belief that the ASLA was an organization concerned with environmental issues. Nineteen percent more ASLA members than nonmembers indicated they subscribe to environmental publications. This may not be truly reflective of actual commitment, however, since membership in organizations often automatically results in the member receiving the organization's publication(s).

There was no significant relationship discovered between the state of residency and professional practice and level of actual commitment.

In what could be considered a slightly more active demonstration, fully 13% more ASLA members than nonmembers reported having written their congressional representative about environmental problems.

On a more active note, attendance at meetings for a better environment reflected the next highest difference (15%), with ASLA members indicating more activity. This again could be reflective of those ASLA members who considered their ASLA meetings to be concerned with a better environment. The difference drops dramatically for attendance at nonASLA meetings related to the environment

(68% versus 61% for ASLA members and nonmembers respectively).

A high positive correlation was found between LAs who bought products because they were less likely to pollute and having switched products for environmental reasons. Also highly correlated were the effort to buy products for environmental reasons and having switched products for environmental reasons. Having attended meetings specifically for the environment and attend meetings for a better environment were also highly correlational. Taken at face value these findings could indicate a consistent interconnected action among these factors. A closer look, however, could reveal a problem with the latter pair's use of past and present verb tense. This correlational pair consisted of a present and a past action. The interpretation of this item in particular by the respondents may not reflect the design intent of past and present.

Actual commitment scores for the overall population reflected a mean of 6.23 (out of nine) and a standard deviation of 2.91, reflecting a moderate level of actual commitment with quite a bit of deviation in both the positive and negative directions. High levels of attitudes, locus of control, and verbal commitment still yielded moderate levels of actual commitment.

An analysis of variance designed to detect significant differences between actual commitment for both ASLA members

and nonmembers determined that a significant difference ($p < .05$) existed between ASLA members and nonmembers. Even with the revised AC scores, there remained a significant difference ($p < .05$) between ASLA members and nonmembers. These findings support Ruiz's (1986) results that indicated ASLA members were more active in matters of environmental concern than nonmembers.

No significant correlations or differences were found between ASLA members and nonmembers for either the 'pro bono' or 'civic activities' socioeconomic variables and actual commitment.

Attitude, Verbal Commitment, and Actual Commitment Comparisons

Chi-Square testing of relational actual and verbal commitment variables indicated significant correlations. There was a significant positive correlation between stating the willingness to join a group or club and actually having done so ($p < .005$). Those indicating a willingness to stop buying products from polluting companies also indicated actually having switched products for environmental reasons ($p < .05$). A stated willingness to write congresssional representatives about environmental problems, although reflecting a significant correlation ($p < .05$) with having written to a representative about environmental problems,

was reflective of a negative relationship. That is, those who said they would write have not actually written.

Results of both the Chi-Square crosstabulations for independence and T-tests for differences between attitudes and actual commitment scores were revealing. Chi-Square testing revealed no significant relationship between expressed attitudes and actual commitment for the general population--that is, for the population studied VC and AC were found to be independent of each other. The results of the T-tests supported this by revealing a significant difference ($p < .005$) between expressed attitudes and actual commitment.

Chi-Square testing for independence and T-tests for significant differences conducted to examine verbal versus actual commitment scores were revealing. Chi-Square tests for independence revealed a significant relationship ($p < .005$) between verbal commitment and actual commitment. This significant relationship is further defined by the T-tests which indicated the existence of a significant difference ($p < .005$) between the stated willingness to act and the actual actions taken.

Locus of control and verbal commitment were found to be highly positively correlational ($p < .05$). Those who expressed a high level of locus of control also expressed high levels of verbal commitment and vice versa. There was

also a highly significant positive correlation between ATT and LOC ($p<.005$).

Very little difference was found between ATT, LOC, VC, and AC scores. The differences were not significant for the overall population.

Differences existed between the ASLA members and nonmembers' ATT, LOC, VC, and AC scores, however. While significant positive correlations were found to exist between LOC and VC ($p<.05$) for ASLA members, the same did not exist for nonmembers. The ATT and VC correlation for ASLA members approached significance. These findings indicated the existance of a higher level of locus of control and verbal commitment on the part of ASLA members than for nonmembers.

'Pro bono' work and 'civic activities' were found to be insignificant for determining AC for either ASLA members or nonmembers, although with further scale compression, these two socioeconomic variables would become significant. This compression, however, was considered to be too gross to have reasonable application.

Hypotheses Confirmation

Three hypotheses were stated in Chapter I as being the focus of this research. The interpretation of the data as presented above is applied briefly to each hypothesis below.

Hypothesis I. Landscape architects registered and living in their primary state of professional practice would not be as active in their demonstration of environmental concern as citizens as their stated concern with the quality of the environment would indicate.

Landscape architects high levels of reported attitudes did not significantly correlate positively with their lower levels of actual activity. Hypothesis I was therefore supported by these findings.

Hypothesis II. Landscape architects registered and living in their primary state of professional practice would not be as active in their demonstration of environmental concern as citizens as their stated willingness to act would indicate.

Due to the lack of significant positive correlation between verbal commitment and actual commitment for registered landscape architects, Hypothesis II can be accepted by the results of this study.

Hypothesis III. Registered landscape architects who are members of the ASLA would report higher levels of actual commitment to environmental concern than those who are not members.

ASLA members did report higher levels of actual commitment to environmental concern than did nonmembers. These reported levels were found to be significantly different statistically between the two groups; therefore, Hypothesis III was supported by these results.

Implications

These research findings cannot be considered unusual when applied to the general population of United States. Time after time, studies have reported most persons having a relatively high degree of verbal commitment with lower levels of actual commitment. These findings are, however, disappointing given the fact that the profession of landscape architecture is heavily environmentally oriented.

What is also disappointing is that the four states selected for inclusion in this study are generally considered to be trend-setters (Naisbitt, 1984). If this is truly the case, can the LAs who reside in these states also be considered to be the same? If they are the trend-setters, then hopefully the trend is moving in the direction of heightened environmental concern; if not, then any

generalization to the population of LAs as a whole based on this study is not a positive one. The limited scope of this study precludes rushing to this assumption. While it most certainly can be viewed as an indication of the professional landscape architect and environmental concern, it cannot be considered the definitive word.

Personality traits may be the leading factor in the apparent preference for certain activities. Landscape architects tended to participate in the more individual, less public displays of concern. They preferred the more introverted activities such as belonging to an organization concerned with environmental issues, purchasing less environmentally harmful products, and recycling over the more public, extroverted activities including joining cleanup drives and contacting an environmental agency to get involved. Johnson's (1987) findings confirm that LAs are significantly more introverted than the general population.

The fact that the majority of LAs who participated in this study indicated having attended non-ASLA meetings related to the environment and meetings of an organization specifically concerned with the environment may be in keeping with this tendency for introversion rather than an indication of extr0version. In attending meetings, it may be relatively easy to blend in with the rest of the people and not draw attention to oneself. The same could be true

for participating on committees where an individual may not have to interact with large numbers of people.

Landscape architects appear to prefer to keep their distance from politics as well. Neither keeping track of voting records on environmental issues nor writing to representatives about environmental problems were high on the LAs list of priorities. It has been suggested that LAs tend to be apolitical (Carpenter, personal communication), and these findings seem to confirm this.

Commitment to environmental concern has an additional dimension which must consider available time, money, and energy on the part of the potential participant. Actual commitment to environmental concern may cover a wide range of possiblities. Membership in an organization may be reflective of a more passive, financial commitment, or more active by commiting time and energy for meeting and event attendance. Subscriptions to environmental publications also may be reflective of a more passive, financial commitment, while the actual reading requires a commitment of time. Recycling, buying products because they are less likely to pollute (especially if it is inconvenient), keeping track of elected official's voting records on environmental issues, and writing those representatives about environmental issues requires the commitment of time, and to a lesser extent, money. The joining of a cleanup drive also requires time and energy.

For the most part, those actual commitment items receiving the highest level of participation in this study were of the more passive, individual nature--purchasing of products, recycling, and belonging to an environmental organization. This should not come as any surprise when one considers the personality factor of introversion and that over 60% of the LAs reported working more than 40 hours a week on the average.

Implications for the ASLA

While it would appear that membership in the ASLA does not significantly increase the positiveness of either the attitudes or verbal commitment of its members over nonmembers, it does appear to have a significant effect on self-reported actual commitment activities.

Although the ASLA can take pride in the actual commitment of its membership to environmental concern, it should not feel its job is done. The ASLA should use its members' creative abilities to determine other, more suitable ways in which its membership can demonstrate environmental concern. It must consider, however, what appear to be the dominant personality traits of its members when doing this or it could well end up an exercise in futility.

The ASLA also seems to have impressed Olmsted's holistic philosophy of landscape architecture on its

membership. Concern for the environment cannot begin at the end of the workday--it must become an integral part of both the professional and personal aspects of the individual.

Recommendations for Further Studies

This research has relied on the honesty and accuracy of the landscape architects used when completing the survey. While some people may have a problem with this type of research that is based on self-reported data, this researcher believes the participating LAs accurately reported their beliefs and activities. The score reflected in the actual commitment section tend to confirm this as being the case (otherwise the misrepresentation of actual commitment activity could well have resulted in a positive correlation with either attitudes or verbal commitment).

Instrument design is critical to the success or failure of a research project. Although portions of the questionnaire used in this study were directly related, questionnaires need to be developed that have most if not all of their items directly relational--either on a direct or general basis. If either Weigel and Weigels ECS or Maloney, Ward and Braucht's EAKS scales are used, they should be updated to reflect the current level of knowledge of environmental problems and well as terminology.

Much of what has been reported in this research comes as no surprise to people familiar with environmental concern research. This research has just begun to discover relationships between the landscape architect and environmental concern. Much more research needs to be conducted. Several areas that require further scrutiny are:

> are other socioeconomic variables reflective of environmentally concerned LAs--including type of professional practice, area of specialization, hierarchical position in the firm, and number of children?
>
> past versus present demonstration of environmental concern--is there a difference in the activity levels?
>
> satisfaction with past experiences versus present levels of activity--did one have an effect on the other?
>
> does knowledge of environmental elements and problems affect attitudes, verbal commitment, and actual commitment?
>
> is there a difference in environmental attitudes, commitment, and knowledge on a world versus a local level?
>
> what would it take to become more involved in environmental concern--money, satisfaction, fear, etc?
>
> is the LA indeed apolitical in attitude and action--both in general and regarding environmental concern specifically?
>
> would a survey the overall LA population tend to support the results of the current study--are they indeed indicative of the overall LA population?

These ideas are only a few of the ways we have yet to learn about landscape architects and environmental concern.

Whether or not it is the addressing of maladaptive behavior or the modification of attitudes that needs to be performed, neither can be accomplished until the population (in this case, landscape architects) is better understood.

APPENDIX A

PILOT STUDY COVER LETTER AND QUESTIONNAIRE

PILOT STUDY COVER LETTER

September 1, 1986

Dear Survey Participant,

I am a graduate student in Natural Resources at the Ohio State University. For my thesis in Environmental Communications, I am doing a study of registered Landscape Architects as environmentally concerned citizens. I need your help.

I have created a survey that will give me valuable information about you and environmental concern. Your input is not only important to me but also critical to the outcome of this study.

Rest assured that your name will not be associated with your responses. You will not be singled out as an individual in anything I write about this survey. It will not be possible for anybody to determine exactly who participated in this survey.

For your convenience, I have enclosed a stamped, self-addressed envelope for you to use when mailing the completed survey back to me. Since time is an important element to my study, I would appreciate you completing and mailing the survey back to me by Friday, September 19, 1986.

Thank you for helping me with my study.

Sincerely,

Hari Ruiz

PILOT STUDY QUESTIONNAIRE

PART I

This section contains nineteen statements related to your thoughts and feelings regarding environmental concern. If you agree with the statement, respond by marking the "A." If you are undecided, mark the "U." If you disagree with the statement, mark the "D." Please be certain to respond to all statements.

1. I consider concern for the environment to be very important. A U D
2. The extent of our environmental problems has been greatly exaggerated. A U D
3. Concern for the environment is solely the job of the government. A U D
4. Everybody contributes to environmental problems in one way or another. A U D
5. Big business will continue to do whatever it wants environmentally no matter what. A U D
6. All citizens should be encouraged to demonstrate their concern for the environment. A U D
7. We are fighting a losing battle with environmental problems. A U D
8. I consider myself to be environmentally aware. A U D
9. I consider environmentally concerned groups to be generally effective. A U D
10. I feel I would be an asset to an environmentally concerned group because of my professional training. A U D
11. I feel my profession is well represented in its demonstration of concern about environmental problems. A U D
12. Environmentally concerned groups are a bunch of radicals. A U D
13. There's nothing I can do as a citizen to demonstrate my concern for the environment. A U D

PILOT STUDY QUESTIONNAIRE (CONTINUED)

14. Landscape architects do not have enough environmental science background to demonstrate their concern about the environment as professionals. A U D

15. The ASLA actively encourages landscape architects to demonstrate their concern for the environment. A U D

16. Landscape Architects are in an excellent position to demonstrate their environmental concern as citizens. A U D

17. I consider myself to be an environmentally concerned citizen. A U D

18. I think it is just as important for everybody to demonstrate their environmental concern as it is for Landscape Architects. A U D

19. Stewardship of the land includes the demonstration of environmental concern. A U D

PART II

This section contains nine statements related to environmental concern. Circle either the "T" if you consider the statement to be True or the "F" if you consider the statement to be False. Please respond to each statement.

20. I'd be willing to ride a bicycle or take the bus to work in order to reduce air pollution. T F

21. I would probably never join a group or club which is concerned with environmental issues. T F

22. I would be willing to use a rapid transit system to help reduce air pollution. T F

23. I am not willing to give up driving on a weekend due to an air pollution alert. T F

24. I would donate a day's pay to a foundation to help improve the environment. T F

25. I'd be willing to write my congressional representative concerning environmental problems. T F

PILOT STUDY QUESTIONNAIRE (CONTINUED)

26. I probably wouldn't be willing to go house to house to distribute literature on the environment. T F

27. I would not be willing to pay a pollution tax even if it would considerably decrease our pollution problems. T F

28. I would be willing to stop buying products from companies guilty of polluting the environment, even though it might be inconvenient. T F

PART III

This section contains sixteen questions regarding your involvement in matters of environmental concern. If your answer is "Yes," circle the "Y." If your answer is "No," circle the "N." Please be certain to respond to every question.

29. Do you make an effort to buy products in recyclable containers? Y N

30. Do you buy products because they are less likely to pollute the environment? Y N

31. Have you switched products for environmental reasons? Y N

32. Do you belong to an organization that is concerned with environmental issues? Y N

33. Do you attend meetings concerned with a better environment? Y N

34. Do you keep track of your congressional representative's and senator's voting records on environmental issues? Y N

35. Do you subscribe to any environmental publications? (Please do not consider any ASLA publications you receive.) Y N

36. Have you ever contacted an agency about antipollution activities in which you can become involved? Y N

PILOT STUDY QUESTIONNAIRE (CONTINUED)

37. **Have you ever written to your congressional representative concerning environmental problems?** Y N

38. **Have you ever joined a cleanup drive?** Y N

39. **Have you ever attended meetings related to the environment (other than ASLA)?** Y N

40. **Have you ever attended any meetings of an organization specifically concerned with bettering the environment?** Y N

For the following question, please mark those that apply to you.

41. Do you recycle:

___ used motor oil
___ glass
___ newspapers
___ other paper products
___ steel/tin/foil
___ aluminum
___ plastics
___ I do not recycle

If you have responded to question #41 that you do not recycle, please proceed to question #44. For each of the following questions, please mark the response that best reflects your involvement in environmental concern.

42. Do you recycle:

___ occasionally
___ regularly

43. Do you recycle:

___ because you can get a little extra cash
___ because you want to help our environment
___ for both reasons stated above
___ for other reasons

44. In how many different environmental groups are you a member? (Please do not consider the ASLA in your answer.)

___ 1
___ 2
___ 3
___ 4
___ 5
___ 6 or more

PILOT STUDY QUESTIONNAIRE (CONTINUED)

PART IV

The following section contains eleven questions primarily concerning demographic information. Please mark the response that best reflects your status. Please be certain to respond to every question.

45. Are you a member of ASLA?
___ Yes
___ No

46. Do you do any "pro bono" work - that is, work for the public good at no charge?
___ Yes
___ No

47. On the average, how many hours **per month** do you devote to civic activities?
___ less than 2
___ 3 to 5
___ 6 to 10
___ 11 to 15
___ 16 or more

48. What are the average number of hours **per week** you typically devote to work for which you are paid professionally?
___ less than 20
___ 21 to 40
___ 41 to 50
___ 51 or more

49. What is your age group?
___ 25 or younger
___ 26 to 35
___ 36 to 45
___ 46 to 55
___ 56 to 65
___ 66 or over

50. Total family income in the last 12 months:
___ less than 7,500
___ 7,501 to 15,000
___ 15,001 to 25,000
___ 25,001 to 35,000
___ 35,001 to 50,000
___ 50,001 or more

51. Highest level of education completed:
___ some high school
___ high school graduate
___ some college
___ college graduate
___ post graduate

52. Degree(s) received and school where received:
___ B.L.A. (school): _____
___ B.S.L.A. (school): _____
___ M.L.A. (school): _____

53. Sex:
___ Female
___ Male

PILOT STUDY QUESTIONNAIRE (CONTINUED)

54. Please briefly list below what you perceive to be the environmental issues in your community.

55. Please feel free to make any comments concerning this survey (i.e., was it confusing?, too long?, etc.)

APPENDIX B

TARGET STUDY COVER LETTER, QUESTIONNAIRE

AND REMINDER POST CARD

OSU

The Ohio State University

School of Natural Resources
2021 Coffey Road
Columbus, Ohio 43210-1085
Phone 614-422-2265
TLX 246628

October 20, 1986

Dear Landscape Architect,

I am a graduate student in Natural Resources at The Ohio State University. I am currently working on my M.S. thesis in Environmental Science and Management. This thesis is a follow-up study to an M.L.A. project regarding registered Landscape Architects and environmental concern I conducted last spring. I need your help.

I have created a survey that will give me valuable information about you and environmental concern. Your timely response to this survey is not only important to me but also critical to the outcome of this study.

Your name will not be associated with your responses. You will not be singled out as an individual in anything I write about this survey. It will not be possible for anybody to determine exactly who participated in this study.

For your convenience, I have enclosed a stamped, self-addressed envelope for you to use when mailing the completed survey back to me. Since time is an important element to my study, I would appreciate your completing and mailing the survey back to me by Monday, November 10, 1986.

Thank you for helping me with my study!

Sincerely,

Hari Ruiz

TARGET STUDY QUESTIONNAIRE

PART I

For the following statements, please mark the number under the response that best reflects your thoughts and feelings related to environmental concern. The responses are "A" - Agree; "U" - Undecided; and "D" - Disagree. Please be certain to respond to all statements.

		A	U	D
1.	I consider concern for the environment to be very important.	1	2	3
2.	The extent of our environmental problems has been greatly exaggerated.	1	2	3
3.	Concern for the environment is solely the job of the government.	1	2	3
4.	Everybody contributes to environmental problems in one way or another.	1	2	3
5.	Big business will continue to do whatever it wants environmentally no matter what.	1	2	3
6.	All citizens should be encouraged to demonstrate their concern for the environment.	1	2	3
7.	We are fighting a losing battle with environmental problems.	1	2	3
8.	I consider myself to be environmentally aware.	1	2	3
9.	In general, I consider environmentally concerned groups to be effective.	1	2	3
10.	I feel I would be an asset to an environmentally concerned group because of my professional training.	1	2	3
11.	I feel members of my profession frequently demonstrate concern about environmental problems as citizens.	1	2	3
12.	Environmentally concerned groups are a bunch of radicals.	1	2	3
13.	There's nothing I can do as a citizen to demonstrate my concern for the environment.	1	2	3

TARGET STUDY QUESTIONNAIRE (CONTINUED)

		A	U	D
14.	Landscape Architects do not have enough environmental science background to demonstrate their concern about the environment as professionals.	1	2	3
15.	The ASLA actively encourages Landscape Architects to demonstrate their concern for the environment.	1	2	3
16.	Landscape Architects are in an excellent position to demonstrate their environmental concern as citizens.	1	2	3
17.	I consider myself to be an environmentally concerned citizen.	1	2	3
18.	I think it is just as important for everybody to demonstrate their environmental concern as it is for Landscape Architects.	1	2	3
19.	Stewardship of the land includes the demonstration of environmental concern.	1	2	3

PART II

For the following statements, please mark the number under the response that best reflects your thoughts about matters of environmental concern. The responses are "T" - True and "F" - False. Please respond to each statement.

		T	F
20.	I'd be willing to ride a bicycle or take the bus to work in order to reduce air pollution.	1	2
21.	I probably would not join a group or club which is concerned with environmental issues.	1	2
22.	I would be willing to use a rapid transit system if available to help reduce air pollution.	1	2
23.	I am not willing to give up driving on a weekend due to an air pollution alert.	1	2
24.	I would donate a day's pay to a foundation to help improve the environment.	1	2
25.	I'd be willing to write my congressional representative concerning environmental problems.	1	2

TARGET STUDY QUESTIONNAIRE (CONTINUED)

		T	F
26.	I probably wouldn't be willing to go house to house to distribute literature on the environment.	1	2
27.	I would not be willing to pay a pollution tax even if it would considerably decrease our pollution problems.	1	2
28.	I would be willing to stop buying products from companies guilty of polluting the environment, even though it might be inconvenient.	1	2

PART III

For the following statements, please mark the number under the response that best reflects your involvement in matters of environmental concern. The responses are "Y" - Yes and "N" - No. Please be certain to respond to every question.

		Y	N
29.	Do you make an effort to buy products in recyclable containers?	1	2
30.	Do you buy certain products because they are less likely to pollute the environment?	1	2
31.	Have you switched products for environmental reasons?	1	2
32.	Do you belong to an organization that is concerned with environmental issues?	1	2
33.	Do you attend meetings concerned with a better environment?	1	2
34.	Do you keep track of your congressional representative's and senator's voting records on environmental issues?	1	2
35.	Do you subscribe to any environmental publications? (Please do not consider any ASLA publications you receive.)	1	2
36.	Have you ever contacted an agency about antipollution activities in which you can become involved?	1	2

TARGET STUDY QUESTIONNAIRE (CONTINUED)

		Y	N
37.	Have you ever written to your congressional representative concerning environmental problems?	1	2
38.	Have you ever joined a cleanup drive?	1	2
39.	Have you ever attended meetings related to the environment (other than ASLA)?	1	2
40.	Have you ever attended any meetings of an organization specifically concerned with bettering the environment?	1	2

For the following question, please mark those that apply to you.

41. Do you recycle:

___ used motor oil
___ plastics
___ aluminum
___ steel/tin/foil
___ newspapers
___ other paper products
___ glass
___ I do not recycle

If you have responded to question #41 that you do not recycle, please proceed to Part IV on the next page. For each of the following questions, please mark the response that best reflects your involvement in matters of environmental concern.

42. Do you recycle:

___ occasionally
___ regularly

43. Do you recycle:

___ because you can get a little extra cash
___ because you want to help our environment
___ for both reasons stated above
___ for other reasons

PART IV

The following section contains eleven questions primarily concerning demographic information. Please mark the response that best reflects your status. Please be certain to respond to every question.

44. In how many different environmental groups are you a member? (Please do not consider the ASLA in your answer.)

___ none
___ 1
___ 2
___ 3
___ 4
___ 5
___ 6 or more

TARGET STUDY QUESTIONNAIRE (CONTINUED)

45. Are you a member of ASLA?
___ Yes
___ No

46. On the average, how many hours **per month** do you devote to "pro bono" work - that is, work for the public good at no charge?
___ none
___ 1 to 5
___ 6 to 10
___ 11 or more

47. On the average, how many hours **per month** do you devote to civic activities?
___ less than 2
___ 3 to 5
___ 6 to 10
___ 11 to 15
___ 16 or more

48. What are the average number of hours **per week** you typically devote to work for which you are paid professionally?
___ less than 20
___ 21 to 40
___ 41 to 50
___ 51 or more

49. What is your age group?
___ 25 or younger
___ 26 to 35
___ 36 to 45
___ 46 to 55
___ 56 to 65
___ 66 or over

50. Sex:
___ Female
___ Male

51. Total family income in the last 12 months:
___ less than 7,500
___ 7,501 to 15,000
___ 15,001 to 25,000
___ 25,001 to 35,000
___ 35,001 to 50,000
___ 50,001 or more

52. Highest level of education completed:
___ some high school
___ high school graduate
___ some college
___ college graduate
___ post graduate

53. Degree(s) received and school where received:
___ B.L.A. (school): _____
___ B.S.L.A. (school): _____
___ M.L.A. (school): _____
___ other _____

Thank you for helping me with my study!

TARGET STUDY REMINDER POST CARD

Dear Landscape Architect,

It's not too late! You can still help me with my study by completing my environmental concern survey and returning it to me by Monday, November 17th. If you have already returned it, please disregard this reminder. Thank you!

Hari

Hari Ruiz
(Graduate Student)
The Ohio State University

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